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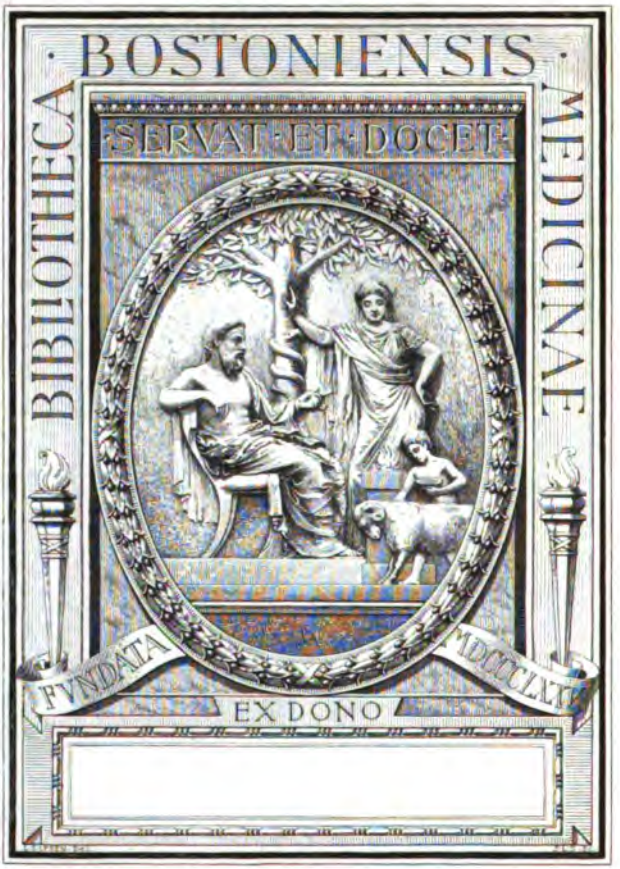
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THE SCOTTISH
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OBSTETRIC VIEWS THAT NEED REVIEWING

By WILLIAM STEPHENSON, M.D., F.R.C.S.E.,
Professor of Midwifery, University, Aberdeen

I.—Concerning Uterine Structure.

From the time William Hunter published his classical work (1774 and 1794), the uterus has been regarded as an organ composed of bundles of muscular fibres, arranged in layers, some more or less circular, others longitudinal. This general conception has been implicitly accepted, and to this day dominates obstetric thought; from it various wrong notions have sprung.

The ascribed arrangement is simple; it accords with that found in other parts of the body, and is therefore what we naturally would expect; it is, however, more easily imagined than demonstrated. The formation is well adapted to secure the safety and retention of the ovum; but when the process of extrusion is considered, difficulties arise. To meet these, the obstetric mind has supplied various hypotheses—inhibition of muscle, uterine polarity, one part is assumed to remain passive whilst another is active.

A well-known author states concisely this traditional view of the subject:—"The circular muscular fibres of the cervix," he says, "do not contract in conjunction with the rest of the wall; but on the contrary, there is a nervous correlation between them, of such a kind that, with contractions of the body of the uterus, such as occur in labour, there is associated a physiological yielding of the sphincter muscles of the cervix, including both internal and external os. Con-

versely, when the body of the uterus is inactive, the circular fibres of the cervix are generally in action."

Now note, such a conception implies separate and antagonistic action in different parts of the organ; the uterus becomes, not one muscle, but a muscular system; the function of one part is to retain, that of the other to expel the ovum. Is the ovum retained by muscular action? Are there any sphincter muscles?

Writing in 1821, Dr John Ramsbotham called in question the views then entertained of the uterine musculature. He said: "However authors may write and teachers may talk about uterine muscles, no such structure is evident to my senses. . . . The uterus possesses a structure strictly *sui generis*; one peculiar to the organ. The animal body has not another of a similar kind, it is therefore incapable of being elucidated by reference to any other."[1] This sounds strange to us, but there is a germ of truth in his remarks; his notion of muscle, of course, was derived from voluntary muscle only. Interesting it will be, and by no means surprising, should his opinion be found nearer the truth than the prevailing views of to-day. The time is not yet, when the mystery and the marvel of uterine construction can be unravelled; but recent research is pointing in the direction indicated by Ramsbotham. He struck the proper keynote when he said, "the uterus possesses a structure *sui generis*, it is incapable of being elucidated by reference to any other" organ.

Many ideas proper to skeletal muscle are not applicable to the uterus. The mistake that has been made is, that whilst recognising the tissue to be unstriped muscle, we have striven to read into it the system of voluntary muscle, instead of, with unbiased minds, closely questioning the uterus itself.

To deal with the subject aright, it is necessary to keep in view the properties of the uterus, its behaviour under different conditions, the changes it undergoes, and as far as possible to investigate its minute structure in relation to its mode of action. In all these respects, the knowledge of to-day is far in advance of that when the traditional notions were formulated; hence the need of revision.

[1] "Practical Observations in Midwifery," by Dr John Ramsbotham, M.D., London, 1831, Part i. pp. 4 and 8.

Since the epoch-marking publication of Braune's frozen sections (1872), the ground has been explored afresh; numerous reports, by many workers, are at our service, but they lie scattered in many journals, not always accessible. In perusing the various contributions on special points, one is apt "not to see the wood for the trees." What men most need, and many men desire, is a general yet accurate conception of the subject as a whole, broad and practical, based upon reliable observations.

Structural Arrangement of the Walls.

In approaching this subject, the mind must be kept clear of the expectation that the direction and course of fibres can be ascertained as readily as in voluntary tissue. Bundles of fibres, in the ordinary sense, are not found; no layers, such as are described in books, can be made out; the appearance of outer longitudinal and inner circular fibres is illusive, a misinterpretation of what is seen.

Connective Tissue Framework. — In addition to the muscular element, the uterine walls contain a large amount of cellular, connective and elastic tissue. This tissue accompanies all the vessels in their course, separates the various strata, and divides the muscular tissue in each layer; it forms the greater bulk of the cervix. Bayer in his investigations took the connective tissue as "the key to the musculature"; they are, however, so intimately associated, that it is difficult to distinguish them. Much that is connective tissue has been assumed to be muscle, and credited with contractility. Thus writers still speak of *the portio vaginalis* as a sphincter muscle, capable of passing into a condition of "spasmodic rigidity"; whereas, in this part, the connective tissue so preponderates, and is so dense in structure, that no such muscular action can be ascribed to it; it is part of the uterine wall, but not of the musculature. The uterus is all one muscle, but its tissues are not all muscular.

Longitudinal and Transverse Sections.—In the pregnant uterus, before the arrangement has been disturbed by the action of labour, the walls, on section, present throughout a

close stratified appearance. A notable peculiarity, pointed out by Hoffmeier, is, that longitudinal and transverse sections are so much alike, they cannot be distinguished. Each section presents the appearance of strata of muscular tissue, running in planes parallel with the surface; the strata being more or less separable one from another, a greater separability being characteristic of certain parts of the walls than of others (Figs. 1, 2 and 4).

If, with a low power, we further examine each stratum or lamella, we find it does not consist of a homogeneous layer of muscular tissue, but that the muscular elements appear in the form of islets; these islets are separated by delicate connective tissue (Figs. 5 and 6).

Tangential Sections.—On making sections parallel with the plane of the external surface, we have an appearance very different from that of the sections just described. The eye is now looking on the surface of a lamella, not on the cut edges of several. The stratified appearance is lost; the section presents a far more homogeneous character. The islets of muscle are laid bare, so as to show their superficies in its greatest extent; but we are still able to make out, by a study of a number of sections, the strands of connective tissue separating islets in the same section (Figs. 7 and 8).

Thus we may conceive the structure of the uterine wall as consisting of a connective tissue meshwork, its meshes flattened in a plane parallel with the surface; the meshes being filled in with muscular tissue, appearing as "plates" in the superimposed lamellæ, not bundles of fibres coursing round the wall.

This *lamellate arrangement* admits of an important property; one stratum can move on another, or a number may participate in a sliding movement in the same direction, so that the upper layers will have advanced a measurable distance before the under ones have perceptibly moved; and it is probable that the several layers move in a spiral manner. To Bayer we owe this idea of sliding or "unfolding" of the separate lamellæ: how well it accords with uterine changes will afterwards be seen.

All the above characters can readily be realised by looking at a laminated body such as a book, the thicker the better. The

FIG. 1.—Uterus in third stage of labour: Mesial section.

FIG. 2.—Transverse section: same uterus.

PLATE I.—TO ILLUSTRATE PROFESSOR STEPHENSON'S ARTICLE.

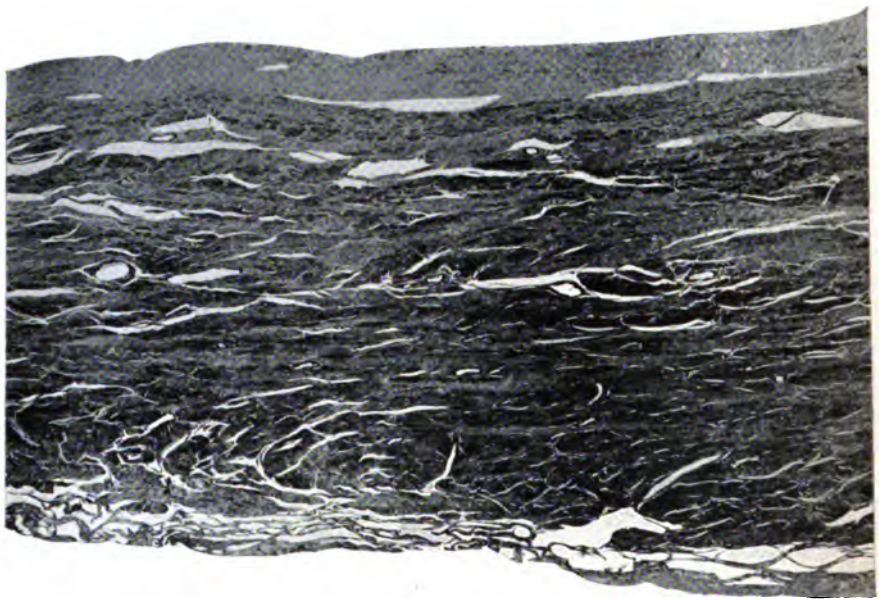

FIG. 3.—Longitudinal section from body of puerperal uterus. ×6

FIG. 4.—Longitudinal section: body of uterus before labour. ×6.

PLATE II.—TO ILLUSTRATE PROFESSOR STEPHENSON'S ARTICLE.

upper margins give a transverse section, the sides a longitudinal one; each presents a similar stratified appearance, the strata always corresponding with the plane of section. Open the book—the surface of a page represents a tangential section; the stratified appearance is lost. At the edges the mobility of the leaves, one on the other, is evident; each leaf has moved a barely perceptible distance more than the one beneath it, yet the distance between the edge of the upper page and that of the lowest is considerable.

Thus starting with "a clean slate," discarding all preconceived ideas, questioning the uterus alone, we see delineated a conception of the organ very different from that first described. All we have as yet attained is a mere outline, but it embodies clear and fundamental ideas—namely, the framework of connective tissue, the import of which has been overlooked, and has still to be examined; the lamellate construction, with the muscular tissue laid in plates, not in circular and longitudinal fibres; and thirdly, the plastic character or mobility of the lamellæ one on another.

The examination of many sections has assured me that no one is yet in a position to state definitely what is the arrangement as regards direction of the muscular fibres. We are too ready to assume that it coincides with that of the connective tissue. Such minute knowledge, however, is not necessary to elucidate uterine action; by studying the mechanical effects we can ascertain the resultant of the forces.

To further develop our conception, and at the same time test the views here advanced, we may examine the changes the walls undergo during pregnancy and labour.

With the numerous conflicting opinions concerning the lower uterine segment, that, for long, have swirled round the funnel-shaped opening, we have at present nothing to do; suffice it, that the cervix persists as a canal until the process of separation and extrusion of the ovum has commenced; that to give exit to the fœtus, the lower part of the body of the uterus, as well as the cervix, undergoes expansion; and that afterwards they do not retract with the rest of the uterus.

During labour an important change takes place, usually

described in the following terms:—"The uterus differentiates itself into two portions, an upper active one, which thickens; and a lower passive one, which thins." Here in the statement of a truth, based on observation, there unfortunately is introduced an opinion, which may or may not be true. To say that the lower part is passive, meaning thereby that it does not participate in the general contraction of the musculature, is a conjecture for which there is no sufficient evidence: it may be traced to the erroneous idea of a sphincter action.

This change in the uterine walls goes on gradually during the greater part of labour. By frozen sections of parturient women it, so to speak, has been caught in different stages of its progress. From those, we know that until the uterus is empty, the walls thicken unequally, retraction is more advanced in some portions than in others. Externally there is no evidence of this inequality, the peritoneal surface retains its fairly symmetrical contour and even surface. *The thickening is all to the inner side*, the inner surface displays great plasticity, it becomes a mould of the form of the contents. Not till the uterus is empty do the inequalities of the inner surface disappear[1] (Fig. 1).

In the definition given above of this behaviour of the uterus, the plane of differentiation is made to correspond with the retraction ring. Considering the peculiarity just noted, would it not be more accurate to regard the change as one between the inner and outer portions of the walls, instead of between the upper and lower segments? What has happened is that the inner lamellæ have slid up, have retracted more than the outer. Whichever way it be viewed, it is evident that *there is a difference in behaviour between the outer and inner portions of the walls*, suggestive of two or more layers.

On vertical section, at first sight, this idea does not seem to be confirmed; a difference in texture more than construction is observable, looser or less compact as the mucous surface is approached: but it is little more than the difference between the right and the wrong side of some kinds of cloth. On closer examination, a dotted line of demarcation can be traced by the sections of the larger circular arteries, which lie in a

[1] See paper by the author on "The Uterus in the Third Stage of Labour," in this Journal, January 1898.

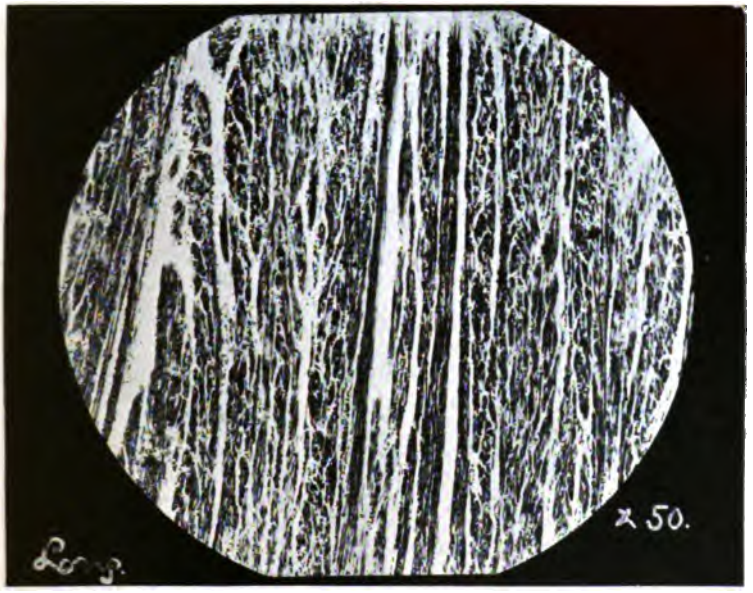

FIG. 5.—Longitudinal section : uterus before labour.

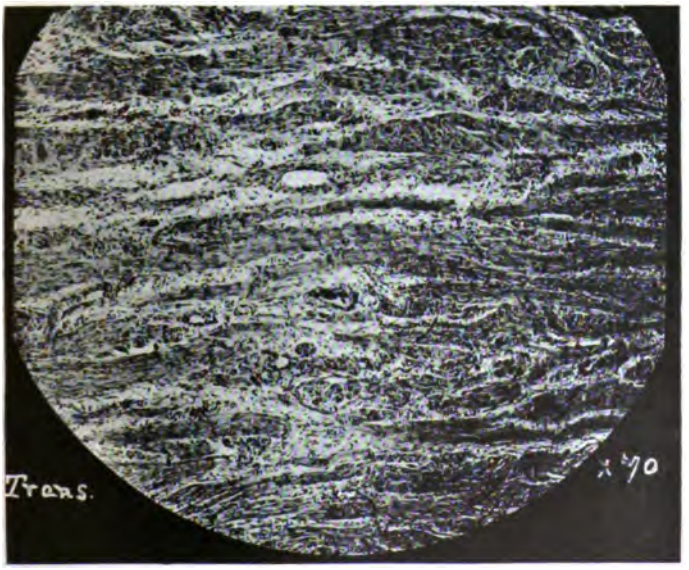

FIG. 6.—Transverse section : uterus puerperal.

PLATE III.—TO ILLUSTRATE PROFESSOR STEPHENSON'S ARTICLE.

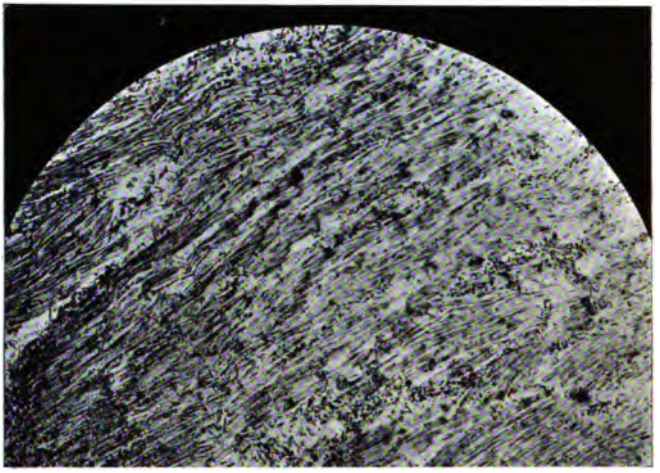

FIG. 7.—Tangential section.

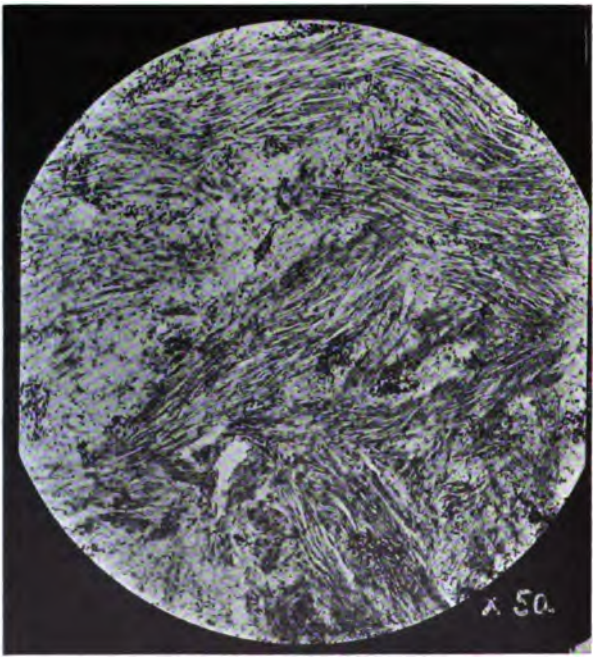

FIG. 8.—Tangential section.

PLATE IV.—TO ILLUSTRATE PROFESSOR STEPHENSON'S ARTICLE.

plane near to, and parallel with the peritoneal coat (Figs. 1 and 2). Sir John Williams pointed out that the layer of connective tissue, in which the vessels run, separates the musculature into two divisions, an outer and an inner; the former he regards as the uterine wall proper; the latter, he suggests is a highly developed muscularis mucosæ.[1]

Examining the walls, in a median section, under this two-layer idea, it will be found that the outer portion, much the thinner of the two, is a uniform continuous layer, traceable from the fundus downwards; it forms the peripheral layer of the cervix, and at the lower third is reflected into the vaginal wall to be continuous with its muscular layer. Thus *there is an external muscular wall, uniform in structure, continuous throughout the uterus, and prolonged into the vaginal wall.*

In the body of the uterus and in the cervix, this outer layer is strengthened by an inner, much thicker layer, the structure of which is different in the cervix from that in the body. In the vagina a second layer is not present.

The Effect of Labour Action.

During pregnancy the lamellate construction appears throughout the whole musculature. When retraction has taken place the regularity of the arrangement is disturbed to a varying degree in different parts. In the outer subperitoneal portion, the lamellate appearance is fairly well maintained; it continues undisturbed in the lower uterine segment; there is no disturbance at the placental site, so long as the placenta is not detached; but from the retraction ring upwards the lamellæ of the inner portion have been crumpled together into a confused mass; here the regularity in arrangement is most disturbed, but the islets of muscle surrounded by connective tissue can readily be seen. The term "felted" applied to this portion by writers is inapt. The tissue is simply crumpled up by the rapid diminution of the cavity (Fig. 6).

Structure of the Cervix.

Here the special structural features are, the mode of dis-

[1] "On the Circulation of the Uterus." *Trans. Obstet. Soc.*, London, vol. xxvii., 1885.

tribution of the muscle lamellæ in the peripheral wall, and the nature of the inner strengthening layer before mentioned. The former is a continuation of the musculature of the body; the latter is a thick, dense, submucous connective tissue into which the muscular layers pass (Fig. 9).

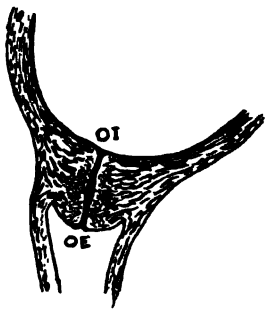

FIG. 9.

Outer Muscular Layer.—When viewed during pregnancy, in longitudinal section, the musculature of the lower uterine segment, as it approaches the cervix, opens out like a fan; the innermost lamellæ curving inwards to the internal os; the outer ones going vertically downwards to the vagina; those between the two, radiating, till they pass at different levels into the connective tissue layer.

Inner Connective Tissue Layer.—Between the mucous membrane and the muscular wall, there intervenes a layer different from any other part of the uterus. It is "a close felted texture rich in connective tissue," and forms the chief bulk of the cervix (Benkiser). Contrary to the general notion, I cannot regard it as in any sense muscular in function; it is part of the connective tissue framework, and its function will be referred to presently. It is in the form of a cone, the base is the portio vaginalis, it thins as it passes upwards to the internal os. Bandl speaks of it as extending upwards over one half of the lower segment. In the illustrations of Hoffmeier's paper the conical formation is well shown.

How is the Ovum Retained in Utero?

In the earlier part of this paper it was noted that, under the generally entertained conception of the uterus, the musculature is assumed to be concerned in the retention, as well as in the expulsion of the ovum. We read of "the sphincter muscle which retains the contents of the cavity," that "when the body of the uterus is inactive, the circular fibres of the cervix are generally in action." There is nothing to support such an opinion.

Several writers have drawn an analogy between the uterus and the rectum or bladder. So far as retention of the contents is concerned, there is, on the part of the uterus, a difference fatal to the analogy. The contents of the bladder and rectum are distinct and separate from the organs in which they lie; there is need of a sphincter to hold them in. On the other hand, the ovum is for the time being an integral part of the pregnant uterus; there exists a close attachment of its entire superficies to the inner surface of the uterus. At any time disturbance of this attachment, natural, pathological, or artificial, has a direct influence in exciting labour.

Albeit, during pregnancy, the musculature may act like an elastic cushion to guard the attachments from any injurious stress, and the rhythmic contractions of pregnancy are important factors in uterine and placental circulation; but withal, *the function of the musculature is to expel, not to retain, the ovum.*

The retention of the ovum is further secured by the shape and structure of the uterus. During gestation the cavity is kept closed by the cervix, whose form is maintained by the dense fibrous structure of its inner layer. This tissue offers effective resistance to any stress, muscular or otherwise, brought to bear upon it. When, however, the softening that precedes labour has sufficiently advanced, this resistance is weakened; the tissue finally yields to muscular action.

We now approach a subject round which a haze still hangs: *when and how is the cervical canal expanded?* Before it can be cleared up, an answer must be given to another question.

What is to be included within the term labour? In recent years there has been a lack of scientific precision in the use of the term. It has a definite meaning, which everyone understands; yet the custom has arisen to include within the term certain changes which may have been going on for days and even weeks before anyone would pronounce the woman to be "in labour." These well-known changes are preliminary *to*, but are not *of*, labour.

As the ovum matures, it ripens, it becomes more readily separable from the uterus, the attachments that have secured its retention become attenuated, physiological relaxation of the

tissues is increased; should the ovum be blighted at any time, and from any cause, the same histological changes occur; they constitute a process of DEHISCENCE, which culminates in, but is distinct from, that of labour.

The introduction of this botanical term into obstetrics is scientifically correct; it gives precision to our ideas; labour, then, has a definite and single meaning—the *active effort* of the uterus to rid itself of its contents.

In labour the *whole* musculature is thrown into action; once begun, it is steadily progressive, with gradually increasing energy; it is reckoned by hours. On the other hand, no effort or perceptible activity of the uterus as a whole is necessary in the process of dehiscence; the chief effects are partial or localised; it extends over days and weeks.

The effacement of the cervix as a canal strictly belongs to dehiscence, not to labour. The change may be delayed till labour begins, but it is often complete for days before the energetic work of extrusion sets in; labour action is therefore not essential.

How the process is accomplished cannot be discussed until our ideas regarding uterine action have been reviewed. This will form the subject of the next paper.

To Dr Alexander Low, Demonstrator of Anatomy, Aberdeen, I am much indebted for the beautiful photographs of sections from which the accompanying plates have been made.

THE TOILET OF THE ANUS[1]

By A. G. MILLER, M.D., F.R.C.S.,
Consulting Surgeon, Royal Infirmary

ATTENTION has been frequently drawn to the "toilet," so called, of many parts of the body—the hands, the peritoneum, the aural and nasal passages, the mouth, the urethra, and even the rectum.

On investigating a variety of authorities, I have found that most make no reference whatever to the toilet of the anus, while

[1] Read before the Ed. Medico-Chir. Soc., 7th Dec. 1904.

a few refer, in a general way, to local troubles, and the risk of infection of other parts, which may result from the want of proper cleansing. Obstetricians point out the importance of cleansing and disinfecting the anus before parturition and operations. Nowhere, however, have I found daily cleansing specially recommended. There have been remarks on the subject in the journals from time to time, but the matter does not seem ever to have been taken up seriously.

These facts are my excuse for the following paper on the toilet of the anus.

The frequency with which the B. coli causes septic trouble in many parts of the body is now well known. How it becomes transplanted is not, perhaps, so thoroughly understood. One frequent medium is undoubtedly the hands. How these may become contaminated is not a pleasant subject for thought, but it is necessary to consider the matter in order that the means of infection may be understood, and preventive measures employed.

The ordinary method adopted in this country for cleansing (?) the anus after defæcation is to wipe the part with paper. That the result is frequently imperfect and unsatisfactory is often made evident to us on the person and clothing of our patients.

A man, when stuffing his shirt down into the seat of his trousers or drawers, must pick up, especially under his nails, much of what is on the inside of these garments. In this way his hands become a medium by which a vast variety of organisms may be conveyed to other parts of the body. It has been stated that not only the B. coli but many other septic and pyogenic organisms, and even the eggs of the oxyuris, are to be found at the anus. This can be readily understood when one remembers the corrugated condition of the skin in that neighbourhood, and the great indifference to proper cleansing after defæcation on the part of many persons.

But this is not all, nor by any means the worst of the matter. Pathological conditions of the anus are not uncommon, perhaps the result of the neglect of proper cleansing. These affections generally cause itching. The itching is frequently intense, or occurs in bed, when the anus can

be readily got at. Under these circumstances it will be seen that the hands, especially the nails, may become the medium of transference of all sorts of organisms to various parts of the body. Thus we see that the hands are infected directly from the anus by scratching, or indirectly from the clothes on account of the want of proper cleansing of the anus.

In the upper ranks of life, among whom modern sanitary appliances are not only luxuries but necessities, washing the anus after defæcation is becoming a more prevalent custom. Some use cold water only, applied with a sponge. Others indulge in a douche. Most employ some kind of antiseptic soap, whilst those who have a tendency to piles or eczema apply in addition some astringent or soothing ointment. This performance is cleanly and beneficial, and ought to be adopted more generally than it is. It ought also to be performed most carefully and thoroughly, because the want of such cleansing may give rise to various troublesome affections. I believe that the habit is more frequently practised by women than by men.

We may take as granted that at the anus there are more organisms than the B. coli, which may give rise to local affections—the skin in this neighbourhood, as we have seen, being of such a nature as readily to harbour organisms. Transference of these to the scrotum, penis and thighs may be made directly, and eruptions result. Indirect transmission may occur, as we have seen, by means of the clothes and hands—especially the nails. If want of cleanliness, or some other cause, has given rise to itching, then the risk of transference of organisms is greatly increased. If there be discharge also, the pollution of the clothes is greater. If the affection be dry, the scales of epithelium lodge under the nails of the scratcher, and so spread the mischief. It is appalling to think of the numerous and virulent colonies of organisms that may be stored under the nails of some persons. In view of these most unpleasant possibilities, I propose to consider how the anus may be suitably and conveniently cleansed.

The anus should first be relieved of all gross defilement by means of paper. For this purpose soft and uncoloured paper should be employed, without any printing or ink marks on it whatever.

The anus should then be carefully washed with soap and water, and dried. Warm or cold water may be used, the latter being better for those who have a tendency to piles. An antiseptic soap may be employed, but it should be remembered that carbolic soap irritates some skins.

The proper posture to adopt during this performance is "squatting," because the skin of the anus is put on the stretch in this position.

For the washing, a sponge or "swab" may be employed. The former I consider to be the better for two reasons. In the first place, the ordinary individual will find it troublesome and inconvenient to have a constant relay of swabs; and in the second place, the dirty swabs will almost certainly be chucked into the w.-c. instead of being burned, as they ought to be. Of course the sponge should be kept clean, and renewed frequently. If there should be an eruption, suitable remedies should be applied after the washing.

Now, what about the hands that have performed this necessary duty? Surgeons might put on rubber gloves, but ordinary individuals will not think of doing such a thing. The hands therefore will come in contact with the water, and, as that will contain most of the organisms washed off the anus, will become contaminated. They will therefore have to be thoroughly cleansed and disinfected.

The thorough cleansing of the hands, including the nails, is as important as of the anus, and *is an essential part of the process.*

I have referred in passing to the local affections which may be due to the want of proper cleansing of the anus. I wish now to speak of some of these more particularly.

The most common is *pruritus ani*, which term includes, I understand, all kinds of itching, with or without eruption, and whether the eruption be moist or dry. These conditions all induce scratching, and consequent infection of the fingers, and especially of the nails. Pruritus ani is, as I have said, very common, moreover it is most irritating, and worst of all, very difficult to cure. Its prevention therefore ought to be a matter of great importance.

As it is quite beyond the scope of this paper to enter on

the special treatment of this affection, I shall content myself with stating that I believe that cleanliness, habitually practised, should prevent, and in some instances may cure, this most troublesome disease.

NOTE.—In the discussion following the reading of this paper, Dr Affleck drew attention to the possibility of want of cleanliness causing malignant disease. Surgeons have long held that local irritation, if long continued, may cause cancer—as witness epithelioma of the lip. I consider this a valuable contribution to my subject.

Follicular abscesses—commonly called boils—being due to the invasion of the skin follicles by pyogenic organisms, must be greatly favoured by want of proper cleansing of the anus, the corrugated condition of the skin in this neighbourhood permitting the harbouring of these organisms. It is evident also that such affections as *fissure* and *inflamed piles* may be prevented by the removal of these pyogenic organisms.

Before leaving this part of my subject, I should like to say a word or two in regard to want of washing as a probable cause of piles. Suppose that irritating substances are lodging at, or just within, the anus. Their presence may cause either contraction of the sphincter—much the same as in fissure—or contraction of the rectum and relaxation of the sphincter with the physiological function in view of expelling the source of irritation. In the latter case the lower portion of the anal canal is protruded, and if the straining (however slight) be continued will become engorged—varicosity being the result (*potential hæmorrhoidal condition*). If what I have sketched be possible, then, it is evident that thorough cleansing of the anus will remove a probable cause of piles.

Going a little farther, I would like to say that I am sure that the use of cold water enemata in addition to washing may prevent piles, or at least prevent them becoming inflamed or ulcerated. The injection of a few ounces of cold water after defæcation not only washes away pieces of undigested and indigestible food, such as apple cores, husks of oats, or bran from brown bread, but stimulates first the rectum to expel everything, and then the sphincter to close the anus.

I do not think it necessary in this paper to refer to the many affections, such as eruptions on various parts of the body, which may be caused through transplantation of organisms by scratching.

The practical result of the consideration of this matter, I take it, is twofold for us doctors. In the first place, it is necessary that we should be sure that our own hands are "clean" and "above suspicion"; while, in the second place, we should preach the gospel of cleanliness in this matter whenever we get opportunity.

I would recommend those who suffer from pruritus ani to keep their nails close cut, to wear gloves at night, and to have these frequently washed.

There are several matters of detail into which I might have entered, such as how the performance of this washing may be carried out in an ordinary house, but I have refrained because I believe it is not necessary. There is one thing, however, about which I should like to say a word before concluding this short paper.

I have seen letters in the medical journals from doctors and others who have been in India, in which they applaud the native custom of washing the anus after defæcation. On account of these statements, I have questioned some of my friends who have lived in close contact with these natives, and who therefore are thoroughly acquainted with their habits. These have told me that the practice of the natives is as different from what I have described as night is from day. Their object is mostly to obtain *ceremonial* cleansing. They employ plain water, and not much of it, which is applied *with the bare hand.* Subsequently some water is poured over the fingers—but thorough cleansing of the hands, or of the anus, is never thought of or attempted. Some of my friends have assured me, that the thought of what a native cook may have been doing just before preparing the dinner, has sometimes made them almost vow never to touch cooked food again.

THE DECLINE OF LEPROSY IN NORWAY[1]

By G. ARMAUER HANSEN, M.D.,
Inspector-General of Leprosy in Norway

As Mr Jonathan Hutchinson still holds firmly to his old theory of the origin of leprosy from eating fish, and declares among other things that leprosy in Norway has not diminished on account of isolation, but because the Norwegians have learned to cure their fish better than before, I feel called upon once more to relate the story of leprosy during the last century. How frequent leprosy was in the last half of the century we unfortunately cannot say with any certainty. In 1836 the numbers were given as 659, and in 1845 as 1122, but this last enumeration being made by the priests, would naturally overlook many of the lepers. Since 1856, regular yearly censuses are taken by the doctors, and since that time we may look upon our statistics as satisfactory. Fortunately a recently deceased doctor of the Asylum in Bergen, Herr Hartwig, had noted the names and residences of all the notified lepers and the duration of the disease in each. This makes it possible to determine the particulars of each newly notified leper of the year in which the disease was stated to have begun. Since lepers almost always conceal their disease as long as they can, it is the rule that when they are discovered and notified they have already been some years ill and ought to be in the statistics of some earlier year. This makes the statistics a little irregular, because the patients cannot give the exact particulars of their disease; but these errors are probably so uniform that they have comparatively little influence on the comparison of different years. Further, we may safely assume that from the censuses taken since 1856 that we have full knowledge of the new cases occurring in 1851-55. This enumeration shows us that at the end of 1856 there were 2500 lepers in Norway, that in the five years from 1851-55 there were 1122 new cases, and in the five years 1856-60 there were 1163. From these we may conclude that in the first place the number 1122 in 1845 was certainly too small; and secondly, that the cases in 1850 were practically as numerous as those of 1856; and thirdly, that leprosy was highly probably on the increase in the middle of the century, since the number of new cases in 1856-60 is more than that in 1851-55, especially when we assume that the number of

[1] This paper appears in *Lepra*, Vol. iv., Fas. 4.

new cases depends on the number in the earlier years, as I hope later to prove. The adjacent table shows the march of leprosy from 1856-1900.

THE STATISTICS OF LEPERS IN NORWAY FROM 1856-1900.

Year.	Number at the beginning of Period.	New Cases.	Results.			Number at end of Period.		Total.
			Died.	Cured.	Emigrated.	At Home.	In Asylums.	
1856 . .	...	(238)	?	?	?	2598	235	2833
1857-1860	2833	951	981	15	31	2218	539	2757
1861-1865	2757	1045	1053	21	45	1911	772	2683
1866-1870	2683	966	1044	31	47	1763	764	2527
1871-1875	2527	697	1006	27	66	1502	623	2125
1876 . .	2125	129	187	3	6	1445	613	2058
1877 . .	2058	122	163	3	7	1378	629	2007
1878 . .	2007	126	149	10	8	1348	618	1966
1879 . .	1966	94	162	5	10	1281	602	1883
1880 . .	1883	85	150	7	7	1187	617	1804
1881 . .	1804	85	164	5	8	1104	608	1712
1882 . .	1712	74	137	11	7	1078	553	1631
1883 . .	1631	89	127	9	5	1044	535	1579
1884 . .	1579	68	140	10	2	976	519	1495
1885 . .	1495	87	146	9	12	893	522	1415
1886 . .	1415	62	135	16	9	795	522	1317
1887 . .	1317	75	111	2	3	762	514	1276
1888 . .	1276	62	99	8	1	705	525	1230
1889 . .	1230	53	86	9	12	646	530	1176
1890 . .	1176	46	123	6	2	584	507	1091
1891 . .	1091	27	107	4	2	519	486	1005
1892 . .	1005	63	104	5	2	493	464	957
1893 . .	957	34	100	6	1	451	433	884
1894 . .	884	24	87	4	3	427	387	814
1895 . .	814	28	70	4	2	406	360	766
1896 . .	766	26	57	5	5	390	335	725
1897 . .	725	28	49	6	1	372	325	697
1898 . .	697	38	65	8	...	348	314	662
1899 . .	662	9	55	1	1	308	306	6 4
1900 . .	614	23	62	...	2	275	298	573
Total		5216	6919	250	307			

Before 1856 the only institutions which took in lepers were the St George's Hospital and Lungegaards' Hospital and a small Reknaes Hospital in Molde, in which altogether rather over 200 lepers were provided for. In 1857 the first large asylum was opened in Bergen, with accommodation for 250 patients, and in 1861 two others—one in Molde, and the other in Trondhjem—together admitting about 500 patients. As is seen from the table, in the years 1857-60 there were 585 patients isolated in the asylum in Bergen, and in this period the number of lepers in the country diminished by 208. These two circumstances, the isolation of so many lepers and the diminution of the total number, harmonise with my view. If Hutchinson's theory were correct, one must assume that the improvement in fish-curing took place suddenly in 1857 ; for, as noted above, we have grounds for assuming that leprosy was increasing before that year. Now, a people hardly alters its ways so suddenly ; reforms of that sort always go on gradually. If one contrasts the two possibilities of a sudden change in the curing of fish with sudden diminution of leprosy, and the isolation of so and so many lepers with similar diminution, it seems to me not difficult to choose between the two. Further, it can be definitely stated that there was no improvement in the curing of fish even in 1870-71. When I investigated many country districts in search of leprosy, I found the circumstances of the peasants exactly as described by earlier investigators, and yet the disease had undoubtedly greatly diminished. One could therefore, I think, say that leprosy has diminished in Norway in spite of the fact that people ate fish, and often badly cured fish.

In considering the relationship of the number of new cases to the number of previously existing lepers, one can see from the tables that the number of new cases has steadily diminished since 1860, that is, since isolation began to work, while the number in the years 1856-60 was higher than in the years 1851-55; the number of new cases in 1856-60 was dependent on the number of lepers in 1851-55, or in still earlier years. In the years 1857-60, 585 lepers were isolated, and in the years 1861-65 we had only 1028 new cases against 1163 in the previous quinquennium, and the number of new cases steadily continues to fall. It must be noted that the figures for 1891-95 and 1896-1900 are too low; it requires at least ten years before we can be certain of the number of lepers in any definite year, and one constantly

comes across new patients who have had the disease for some time.

The necessary corrections for further back years are naturally only trifling.

It is also to be noted that the diminution is directly connected with isolation, that diminution varies very much in different districts, and is always greater the more patients are isolated, as is seen in the following table :—

SÓNDFJORD.

Year.	New Cases.	Deaths.	In Asylums.	Recoveries.	Emigrat.	Number at End of Year.
1856	...	...	...	...	...	431
1856-60	214	83 = 15.0%	211 = 38.2%	...	4	306
1861-65	156 = 18.2%	61 = 15.4%	144 = 36.3%	...	7	250
1866-70	136 = 34.3%	62 = 14.4%	137 = 38.1%	...	1	196
1871-75	182 = 50.6%	50 = 18.8%	86 = 32.3%	...	12	130

NORDMÓRE.

1856	...	...	...	...	...	105
1856-61	81	32 = 19.3%	14 = 8.4%	3	...	119
1861-65	88 = 53.0%	43 = 21.9%	45 = 22.9%	2	...	117
1866-70	92 = 47.0%	40 = 21.5%	43 = 23.1%	6	...	120
1871-75	57 = 30.6%	42 = 25.0%	40 = 23.8%	2	1	92

We do not know the number of lepers at the end of the year 1855, and we must therefore take that at the end of 1856, which presumably would be about the same.

These two districts are quite comparable so far as position and conditions of life are concerned. They both lie on the coast, and their inhabitants are mostly fisherfolk, and live chiefly on fish. Cleanliness, both personal and domestic, is, or rather was, at a very low level; but the improvement in this connection was first evident after the diminution of leprosy was well advanced. As already remarked, there was but little improvement in the conditions in the early seventies, and in Nordmóre I found the conditions very unsatisfactory even later.

Respecting the isolation in the two districts, I must first explain how the percentages are reckoned. I assume that the lepers of any one quinquennium were probably affected at least five years previously. But, as patients always give too short a duration of their disease, it is probably no exaggeration if I reckon the increase percentage in the quinquennium from the number of lepers living at home in the previous five years. Some of the new cases are probably infected earlier, but one may assume that this error is so regularly distributed throughout the different quinquennia, that the comparison, one with another, is not affected. The percentage of deaths and isolation refer to the number of lepers living at home in the same five years.

One sees at once from the figures that many fatal cases occur at home, and one sees further that in Sóndfjord, where the percentage of isolation is greater than that of death, evacuation going on quickly; while in Nordmóre, where the two percentages are pretty much the same, it is fifteen years before any diminution began. In the earlier periods the number remains steady, or even increases. If one reckons the number of lepers living at home in the two districts, one gets the following figures:—

Nordmóre.		Sóndfjord.	
1856-60 . .	166	1856-60 . .	552
1861-65 . .	196	1861-65 . .	396
1866-70 . .	186	1866-70 . .	360
1871-75 . .	168	1871-75 . .	266

In Nordmóre, from 1861-65, they increased 53 per cent., deaths and isolation altogether 44.8 per cent.; in 1866-70, 47 per cent. and 44.7 per cent.; in 1871-75, 30.6 per cent. and 48.8 per cent., the diminution first beginning in the last period. In Sóndfjord, on the contrary, the corresponding percentages are: 1861-65, 28.2 per cent. and 51.7 per cent.; 1866-70, 34.3 per cent. and 52.5 per cent.; in 1871-75, 50.6 per cent. and 51.1 per cent. One sees then that in the Sóndfjord the diminution, thanks to isolation, is in each quinquennium greater than the increase, while the reverse is the case in Nordmóre in the two first quinquennia.

From this one is quite justified in concluding that the diminution in Sóndfjord is brought about by isolation, and that leprosy would have increased if there had been no isolation, and

that the increase in Nordmóre, where the percentage of increase was so high, was brought about by the insufficient isolation.

What the rapid fall of the percentage increase in Nordmóre in 1871-75, and its simultaneous increase in Sóndfjord indicate, I do not know. One could only get some light on it by investigation of the other districts. But for an answer to the question whether isolation or improvement in nutrition played a rôle in the diminution, our figures are sufficient. As I have already remarked, up to the commencement of the year 1870 my own observations showed me there was no important improvement in the conditions of nourishment, and thus the diminution of the number of lepers in Sóndfjord can only have been brought about by isolation; and if isolation can lead to a diminution of the number of lepers living at home, and this diminution to a fall in the number of new cases, this surely suggests that the lepers living at home are responsible for the spread of the disease, and this can only be by their infecting other people. Whether this takes place by what Hutchinson calls "commensal infection" or by contagion, I shall not discuss. I will only show by further tables the percentage in these two districts up to the year 1890.

I do not go further, because later years require more correction.

NORDMÓRE.

1856-60	166	Lepers at home, and in		1861-65	88	New Cases	= 53.0%
1861-65	196	„	„	1866-70	92	„	= 47.0%
1866-70	186	„	„	1871-75	57	„	= 30.6%
1871-75	168	„	„	1876-80	46	„	= 27.4%
1876-80	133	„	„	1881-85	31	„	= 23.3%
1881-85	105	„	„	1886-90	27	„	= 25.7%

SÓNDFJORD.

1856-60	552	Lepers at home, and in		1861-65	156	New Cases	= 28.2%
1861-65	596	„	„	1866-70	136	„	= 34.3%
1866-70	360	„	„	1871-85	182	„	= 50.6%
1871-75	266	„	„	1870-80	62	„	= 23.3%
1876-80	172	„	„	1881-85	27	„	= 15.8%
1881-85	123	„	„	1886-90	20	„	= 16.2%

One sees then that the percentage of increase is diminishing in both districts, but remains higher in Nordmóre than in Sóndfjord. This might be explained in Hutchinson's sense by

a steady improvement in the curing of fish. This, however, is rather improbable.

Since the year 1870, there is a very marked improvement in general circumstances in Sóndfjord, less so in Nordmóre, as I know from my own observations. Further, it was in the beginning of 1870 that I first brought forward my views on the infectivity of leprosy. These were adopted by most of the district surgeons, and preached by them and myself on our journeys to the people. The peasants, who were themselves healthy, readily accepted this gospel; the lepers, on the contrary, were against it, since the theory that they were dangerous interfered with their social engagements. But the main thing is that the healthy became more cautious about their intimacy with lepers.

With regard to the fish hypothesis, it really lies on Hutchinson, who admits the lepra bacillus to be the cause of the disease, to demonstrate its presence in improperly cured fish. I have not felt it my duty to look for it myself, mainly because it would be a useless task; even if one found bacilli showing the character of the lepra bacillus, it would be impossible to prove their identity, since we cannot carry out experiments on animals. Further, as I have previously remarked, it would be a very simple thing to cultivate the leprosy bacillus if it could exist as a saprophyte.

It is quite plain from the tables that leprosy in Norway is steadily diminishing, and though the rate of diminution varies, it is more rapid in later than in earlier years.

The number of lepers in Norway is now so small that two of our asylums, the Lungegaards Hospital in Bergen and the Reknaes Hospital in Molde, were closed in 1894; the latter has been converted into a sanatorium for consumptives, and the oldest of our lepers' hospitals, the St George of Bergen, will be closed when the last of its present patients is dead The hospital is fairly rich, and some of its funds are already being used in the tuberculosis campaign.

The only remaining asylums are in Bergen and Trondhjem and together they can accommodate 500 patients.

The patients in our asylums undertake various duties, and what they make they keep. If they do work for the asylum, they are duly remunerated.

We have no particular rules for the transport of patients, and see no reason for them. Leprosy is a disease which it is not necessary to have any particular dread of. In order to stimulate it into action there are evidently required special circumstances, circumstances which we unfortunately know nothing of.

THE UTILITY AND FUTILITY OF SANATORIA

By RONALD CAMPBELL MACFIE, M.A., M.B., C.M.

I AM very glad to have this opportunity of reading a paper on Sanatoria to the Forfarshire Medical Association, for I believe that even in the profession there are some misconceptions with regard to the nature and the value of Sanatorium treatment. Sanatoria have suffered in character both through injudicious eulogy and through indiscriminate condemnation. On the one hand there have been optimists who have claimed that Sanatoria can work miracles; and on the other hand there have been pessimists who have disbelieved in Sanatoria altogether. The difference of opinion is easy to explain: it is simply a matter of rash generalisation. The optimists have seen a few wonderfully successful cases; the pessimists have seen a few disappointingly unsuccessful ones. Both have generalised from insufficient data; both have jumped to conclusions; and both would modify their views if they had the wider horizons of a more extensive experience.

I myself have carried out open-air treatment for more than five years, and I have had an intimate acquaintance with over 500 cases; I have had many doubts, and disillusionments, and disappointments, yet I have now no hesitation at all in stating that I believe that more consumptives can be cured by Sanatorium treatment than by any other known means. For the last five or six years I have watched Sanatorium cases, and for the last ten or twelve years I watched cases treated at climatic resorts such as Davos, St Moritz, Arosa, Teneriffe, and I feel certain that the results obtained at Sanatoria are better than those obtained by ordinary climatic treatment. You will find further, that all patients who have tried both treatments are of the same opinion.

It is sometimes said that open-air treatment can be carried out well enough at home. That is a mistake. In nine cases out of ten, open-air treatment at home is little better than a farce, unless the patient has had a Sanatorium education; and even after such education, home treatment is seldom quite safe and quite satisfactory. At a Sanatorium everything is done to make it easy for a patient to carry out open-air treatment: he has encouragement, supervision, companionship, pure air, perfect ventilation, and a specially constructed building. At home there are difficulties, and distractions, and temptations, and without supervision, treatment is apt to be either injudicious or inadequate. Patients have come to me who have been carrying out "open-air" treatment at home, and on inquiry I have found that the "open-air" has consisted of a window open a few inches in good weather; and on the other hand, a patient came to me a few weeks ago who had treated himself at home and had gained so much weight that his heart was dangerously embarrassed. The open-air treatment requires the advantages and appurtenances of a Sanatorium, and any man who says that open-air treatment can be carried out equally well at home simply does not understand what he is talking about.

Yet though home treatment can never be a substitute for Sanatorium treatment, it is a necessary supplement, and without some such adjunct Sanatorium treatment must be futile. It is the inefficiency and inadequacy of this continuation that nullifies and stultifies the work done at Sanatoria for the poorer classes. The patients stay for a few months and are put on the upward path; they return to bad surroundings and very soon go downhill again. It is a case of the labours of Sisyphus. We roll a stone half-way up a hill and it straightway rolls down again. In the case of the poorer classes we must roll the stone right to the top of the hill before we leave it. If Sanatoria for the poor are to achieve permanent results, they must treat the patients until they are beyond danger of retrogression; and if their work is to be of true economic value, they must receive patients only in the earliest stages of the disease. But at present there is no administrative machinery for obtaining early cases, and there are no means of securing satisfactory continuance of treatment, and accordingly the work done by Sanatoria for the poor is largely abortive

and futile. What are required at present are not more Sanatoria, but money and machinery to make good and profitable use of the Sanatoria already in existence; and until money and machinery are forthcoming it were both wisdom and philanthropy to convert the Sanatoria for the poor, *pro tem.* at least, into Sanatoria for the paying classes.

These are strong statements, but "facts are chiels that winna ding," and these facts are already confessed, and they must be faced. They are already confessed.

In *Tuberculosis* of last April the following note appears:—"We do not believe that in this country we will ever succeed in getting Sanatoria for the working classes filled with early cases. The working man will, as a rule, endeavour to keep at work until the disease has made so much headway that it thoroughly incapacitates him. Those who are managing Sanatoria must not expect to get many patients who are capable of doing most things for themselves nor anticipate to send out many cured." And Dr Rufenacht Walters, author of the well-known book on Sanatoria, states that "not more than 10 per cent. of Sanatorium patients are early cases—that in the case of the working man the risk of subsequent relapse is very great, and "that the average duration of treatment is insufficient either to cure them or to instruct them in the hygienic rules on which their well-being depends." I might multiply such testimonies; but these will suffice, for they are corroborated by many statistics. We find, for instance, that at Sheffield 39 per cent. of cases admitted were clinically hopeless—that only 57 per cent. appeared to have a chance of being restored to working life, and that eventually four (possibly six) of twenty-eight cases were sufficiently cured to be at work four years after discharge. We read in the report of the Heswall Sanatorium that "the patients in too many cases came to the Sanatorium when too late to receive such benefits as it is calculated to confer." We read in the report of the Durham Sanatorium at Stanhope that 122 out of 168 cases were advanced, and that about half of the whole number died within four years.

In Germany, owing to compulsory insurance, things are better, but even there we read the same lesson. The German Imperial Health Office investigated the after-history of over

2000 patients sent out from Sanatoria, and found that of cases discharged with the disease arrested, only 21 per cent. were able to work four years later. It must be remembered, too, that these were entirely or chiefly very incipient cases sent by insurance institutions. If, then, under the favourable conditions obtaining in Germany only 21 per cent. of arrests last for four years, what can be expected in Great Britain, where financial and administrative conditions are much less propitious.

Even if Sanatoria for the poorer classes could cure one patient in five, still the cost would be greater than public charity guided by principles of social economy can defray; and as the *Lancet* pointed out long ago, open-air treatment of the poor is doomed to failure from sheer inability of our national resources to stand the strain thereby thrown upon them.

In a word, Sanatoria for the poor as at present constituted are medically inefficient and economically wasteful. I make this indictment without hesitation, and yet I would qualify it by saying that under better conditions Sanatoria for the poor might play a very important if subsidiary part in the campaign against tuberculosis. There are three essentials for a successful Sanatorium for the poor. (1) Administrative machinery to collect and select cases. (2) Sufficient endowment to enable patients to be treated till cured. (3) Extra-mural workers to look after the homes and families of the patients during their absence. I firmly believe that under these conditions Sanatoria for the poor would be most potent and valuable weapons against tuberculosis. I believe that with machinery to collect and select cases and with money to keep the cases long enough one might turn out, instead of 20 per cent. of cures, 80 or 90 per cent. of cures; and that the better results would much more than repay the greater capital expenditure. At present there are about 1000 beds for poor consumptives, and 80 per cent. of these are filled with the wrong cases and the other 20 per cent. cannot keep the right cases long enough. What is needed at present is not more beds, but a much better use of those already in existence; we need more money from the public and more support from the general practitioner.

Sanatoria for the middle classes are on a much sounder and more satisfactory basis. In the case of middle-class patients, home treatment must also supplement Sanatorium

treatment, and an endowment fund is also a necessity; but home treatment is likely to be much more efficient, and therefore shorter Sanatorium treatment will suffice, and therefore and for other reasons a much smaller endowment fund is required. In the case of middle-class and what may be called lower middle-class patients there is really only one essential of successful and useful work, and that is the attainment of good cases, and those in the middle classes are, for obvious reasons, more easy to obtain. And even if the cases obtainable are not good cases it matters much less, from an economic standpoint, than it must matter in reference to a Sanatorium for the poor. The case may be almost hopeless, but still if the patient or his friends be willing to pay for the forlorn hope, who will say that the money is wasted. It is obviously a different thing altogether when a limited sum is given by charity to be used as profitably and economically as possible.

I may mention here that almost all the poor patients who improved at Sidlaw Sanatorium during its first year have already relapsed, whereas the majority of patients in better circumstances have continued to improve; and I should like to say, if I may be permitted to give a personal and unofficial opinion, that I consider that the Sanatorium is at present performing much more satisfactory work than when it attempted with insufficient endowment to be a Sanatorium for the working classes. In fact, I cannot conceive of any medical institution more useful and more necessary to the community than is the Sidlaw Sanatorium on its present basis. It is practically the only Sanatorium in Great Britain which is able to provide Sanatorium treatment for the middle classes at moderate fees. There has been an urgent and crying need for such an institution for many years. At present there are only two free beds —one endowed by Miss Lowson of Forfar, and one supported by contributions collected by Lady Griselda Cheape; and I may remark in passing, that these free beds are the most valuable and serviceable beds in the Sanatorium. One knows that the cases sent will be carefully selected, and one knows that the cases can be kept indefinitely, and that the results will be correspondingly good. We have already sent away one St Andrews case who in all likelihood will continue perfectly well; and the case sent to the Lowson bed is making good progress.

I have little doubt that we will succeed in permanently arresting the disease, simply because we can keep him here long enough. I believe that if we had all our beds endowed it would almost quadruple the life-saving value of the Sanatorium; and even an endowment of £1000 a bed would about double its usefulness, and would enable it to save many lives which at present it can only reprieve.

What has surprised me has been the fewness of the cases sent. There are over 200,000 poor consumptives in Great Britain. Probably about 10,000 of these are able to pay our full fees. We are the only Sanatorium of its kind in Great Britain. We ought to be besieged with applications. Yet at the present moment we have only eighteen two-guinea patients. Surely that is surprising! And more surprising still, we have at the present moment not a single two-guinea Dundee patient; and if I am not mistaken, Leeds, two hundred miles away, has sent more two-guinea patients within the last six months than Dundee has sent since the Sanatorium opened. I quite understand that incipient cases do not wish to go to Sanatoria; I quite understand that the idea of a winter at Mentone or St Moritz is more attractive than the idea of a winter on the Sidlaws; I can quite understand that to many a summer-house in a garden sounds more pleasant than a revolving shelter among the heather; I can quite understand that doctors are reluctant to send away promising cases; but still if, as I believe, Sanatorium treatment is the best treatment for consumption, then patients willy-nilly ought to be sent. It is not a question of comfort or of a pleasant holiday, it is a question of life or death; and the very monotony which patients fear is a most important remedial factor. I always tell my patients—and I tell them truly—that if I had the slightest symptom of tuberculosis I should never think of trying any treatment except the open-air treatment; and that I should never think of trying to carry out open-air treatment anywhere else except at a Sanatorium; and that if I had the choice of all the Sanatoria in the world I should choose the Sidlaw Sanatorium. With very few exceptions all the incipient cases sent to the Sidlaw Sanatorium have recovered, and only those sent back to very unfavourable surroundings have relapsed. I quite admit that treatment in this country in winter involves considerable discomforts; but

the discomforts are not so terrible as patients think, and the discomforts of dying of consumption must not be forgotten.

And now, if you will permit me, I should like to say a few words on the subjects of open-air and over-feeding; because I think that misconceptions about both are very prevalent even among medical men. Firstly with regard to over-feeding. It is the fashion nowadays to speak of over-feeding as a kind of Spanish Inquisition, a sort of mediæval superstition now in process of being abolished. It is not an inquisition, it is not a superstition, and it is very far from being abolished. Most experienced doctors carrying out the treatment do still believe in the value of an unusually large quantity of food for patients, and do still feed up their patients to a state of healthy corpulence. Many of the doctors carrying out treatment are themselves cured patients and are themselves *weighty* testimonies to the method of their cure.

Personally I started with quite an open mind; but after watching some hundreds of cases I am quite convinced that large quantities of food with a resultant corpulence are conducive to the eradication of the disease. I do not say that corpulence in all cases is successful; I do not even say that in all cases it is necessary; but I do say that in most cases superabundance of food and increase of weight are conducive to recovery. I believe that most patients should eat as much as they can eat: for the more they *can* eat, the more quickly they will recover. Some patients can eat enormously and I encourage them to do so; and if they cannot eat enormously I encourage them to do their best. I think that on the average a consumptive patient can advantageously consume about 50 per cent. more food than a healthy man would consume living a similar easy open-air life, and about twice as much as a man living an indoor sedentary life ought to consume. It must be remembered that the patients are suffering from a wasting disease, and that open-air, day and night, greatly increases oxygenation and metabolism; it must be remembered, too, that everything is done to enable the nervous system to concentrate its energies on the purely organic functions.

A great deal of nonsense has been talked about the cruelty of making patients eat till they are sick. It is a case of "if you lift a guinea-pig up by the tail its eyes drop out."

Patients do not eat till they are sick. Patients are occasionally sick; but in most cases the sickness has nothing whatsoever to do with the quantity of food taken: it is a purely reflex phenomenon, and is usually started by coughing. There is no nausea; there are no signs of gastric catarrh; and the patient is able to start eating again without the least trouble or distress. In the majority of cases the tendency to sickness goes away during treatment, and does not recur even though the patient may be eating larger quantities of food. Of course, to over-feed a patient suffering from actual gastritis or from nervous exhaustion and general debility; or to feed a patient beyond the powers of his heart and lungs is bad practice, and it is necessary not only to make a patient fat but also fit; still, exceptions in no wise affect the general rule that hyper-nutrition is good for consumptives. I have never seen any gastric trouble arise at a Sanatorium which could be attributed to over-eating, and usually the digestive powers improve marvellously. (I have seen two cases of albuminuria develop under treatment; but I do not think that there is much risk of hurting the kidneys by a few months of over-feeding.) I think the tendency among those without any practical experience of treatment to depreciate over-feeding is much to be deprecated.

After all, over-feeding is not so very empiric treatment as it may seem: there is a certain amount of *a priori* evidence in its favour. One will find that consumptives almost always declare that they have been small eaters, and one will also find that gourmands very rarely suffer from consumption. The clear transparent complexions so often found in consumptives are largely due to under-nutrition, and I always tell patients that they must eat till they spoil their complexions. *How* hyper-nutrition aids the constitution to combat the disease one cannot say. It may be by causing a tendency to gouty fibrosis; but I am inclined to think that it acts by changing in some way the chemical composition of the tissues or by stimulating the formation of natural antitoxines by the tissue cells. The metabolism of the whole organism is stimulated by over-feeding—especially in view of the excessive oxygenation due to open-air life—and accordingly all the secretions and excretions are augmented, and it is surely quite legitimate to suppose that the secretion of antitoxin is also increased. It is

only what one would expect; it is a very suggestive fact that either an open window or a beef-steak will prevent a night-sweat.

Next as to open-air. Over-feeding necessitates open-air. Open-air is the auxiliary of over-feeding; it stimulates the appetite and all the physiological functions; it is the blast that consumes the smoke and prevents the fuel from choking out the fire. Indeed, physiologically speaking, respiration is itself digestion.

Open-air must be administered in large doses. A few inches of open window is useless and may be dangerous. The larger the window and the nearer the bed to the window the better. I have more than once seen night-sweats checked simply by moving the bed a few inches nearer the window. There is no danger of the patient catching cold if the room be dustless, and a breeze across the air stimulates the weakened vaso-motor system and prevents the re-breathing of air. I firmly believe that in some cases the difference between the middle of a room and the window is the difference between life and death. To nothing more aptly than to Sanatorium treatment can one apply the words:—

> "The little more and how much it is.
> The little less and what worlds away."

With regard to climates. I think any climate except relaxing ones are good, and I think that the climate of Auchterhouse is as good for patients as any climate one can find in Great Britain. But I should like before closing to give a rough idea of the results obtained at the Sidlaw Sanatorium. I regret to say that I made a mistake about the date of my paper and so have not had time to make an accurate or elaborate analysis; but roughly speaking, I find that out of the first hundred cases thirty were incipient, fifty-five advanced, and fifteen very advanced. Arrest occurred in 73 per cent. of the incipient cases, in 31 per cent. of the advanced cases, while only one of the very advanced cases recovered, and many of them died within a few weeks. (Some doctors are such optimists that they send moribund patients in the very last stages of tubercular diarrhœa to be fed up.) I find that since we have had a larger number of

better-off patients the results have improved; and this has been due partly to an improvement in the clinical character of the cases, and partly to the fact that better-off patients have better constitutions than those brought up in unhealthy environments. And the results are not only better: they are likely to be more permanent, since there are likely to be fewer relapses.

I am glad to be able to believe that the Sidlaw Sanatorium is doing useful work. What it needs is more money and more incipient cases; and the latter deficiency Dundee doctors can do much to remedy, and I trust that in the future they will make more use of the unique institution which the liberality of ex-Provost Moncur has put at their disposal.

Clinical Records

NOTES OF A CASE OF STRICTURE OF THE SIGMOID WITH MARKED DILATATION OF THE COLON[1]

By GEORGE HALLEY, M.B., C.M., F.R.C.S.Ed.,
Assistant-Surgeon, Dundee Royal Infirmary

PATIENT, a female, aged 58, was admitted to the surgical wards of the Infirmary on 8th July last during Professor MacEwan's absence on holiday. She was sent in for the treatment of a chronic obstruction of the bowels.

The symptoms, which, she then stated, commenced eighteen months previously, were frequent vomiting, griping pains, gurgling and splashings in her abdomen, constipation and gradually-increasing abdominal swelling. Her father and mother had died at a good age, and she was their only child. She had had ten of a family, of whom three had died in infancy, while the remaining seven were alive and well. She had had four miscarriages.

Her circumstances appear to have been and still were good, lived in a good locality, with husband at steady work in a shipyard, and an unmarried daughter at work in a factory.

Her condition was that of a fairly healthy, well-nourished woman, though she said she had lost flesh considerably since her trouble began. Her complexion was somewhat sallow, and the conjunctivæ slightly jaundiced.

[1] Read at November meeting of Forfarshire Medical Association.

She lay ill at ease. Temperature and pulse normal, tongue clean, teeth fairly good; vomited sometimes immediately after, but often not for some time after food. The vomited matter varied in character: green, blackish, or like coffee-grounds. Vomiting often relieved the pain which arose, as also did frequent eructations and passage of flatus, which relieved the varying flatulent distension of the abdomen. The bowels had been constipated, necessitating aperient medicines frequently, which always caused griping pains. The fæces were foul-smelling and blackish. On examination of the abdomen, peristalsis was visible at intervals, producing a varying pattern. The distension was irregular, being almost absent in the hypogastrium and most evident in both flanks. Now and again peristalsis was noted, passing across from right to left in the form of a tube about four inches in diameter about the level of the umbilicus, and disappearing in the left flank.

The circumference at the umbilicus measured thirty-nine inches, and at four inches above the umbilicus it measured forty inches.

Peristalsis was easily produced by palpation of the abdomen, but no tumour nor hardness could be made out anywhere. The abdominal wall seemed thinned out.

The percussion note was tympanitic all over. No dilatation of the stomach was made out. No signs of fluid.

On auscultation, loud gurglings and splashings were heard, especially on the left side. *Per rectum* no tumour nor hardness was felt. The respiratory and circulatory systems were normal, and the urine contained no albumin.

Had soap and water enema on night of admission, which produced a slightly costive but copious motion. Very little fluid was retained. There had been no vomiting on the day of admission.

The case was evidently one for surgical interference, but unfortunately it was difficult to decide what treatment to adopt for the relief of the stenosis until the abdomen was opened. The abdominal pattern gave a little help in the diagnosis of the seat of the stenosis. The distension of the lateral aspects of the abdomen or flank meteorism, as it is sometimes called, pointed to distension of the colon as far down as the sigmoid. At the same time, might not the marked distension, the duration of the trouble, and the absence of a tumour, have suggested a possibility of a band or some cause which would yield easily to treatment? Delay was out of the question, lest the symptoms should have become acute and more dangerous.

On the 12th of July, under chloroform, a median incision was made through a very thin abdominal wall. Some fluid escaped and a distended colon at once presented. The colon was so

tense and distended all over that there were no convolutions and manipulation seemed very likely to cause rupture. The descending colon reached across to near the middle line. There was no small intestine or omentum visible. The descending colon was pierced by trocar, and with some escape of gas was somewhat diminished. The wound made was sutured at once. The cæcum was treated in the same fashion.

The distension was then traced down to the pelvis and found to end in a hard thickened ring, which, being free, was brought up and the bowel beyond was noticed to be collapsed. The hardness extended into the meso-sigmoid.

It was useless to clamp the thinned coats of the bowel above the stricture for excision of the stricture, which one would have liked to perform, and as the patient had already been some time under chloroform, it was thought a lateral anastomosis might have been carried out without a clamp above the stricture by holding the colon in a suitable position.

This was attempted, but owing to the continuous escape of fæces the suture had to be removed and the part of the descending colon incised was sutured to the wound and the abdominal wall, and a clamp was applied to keep the incised colon applied to the parietal peritoneum and also prevent the escape of fæces until adhesions had formed. The wound was closed above and below.

The patient stood the operation very well, was a little restless at night, and next day the pulse seemed a trifle weak, but under stimulants revived.

There was slight rise of temperature for two days, but no longer. Two days after the operation the clamp was removed and fæces allowed to escape. Curved artery forceps were applied, gripping bowel and abdominal parietes on either side and a drainage tube inserted. There was for a few days a large quantity of fæcal discharge, necessitating frequent changes of dressing—six times one day. Five days after the operation all distension had disappeared and the patient felt very comfortable and pleased with herself, and later was able to be up. The patient was against any further operative treatment, so an abdominal belt with a rubber plug for insertion into the opening was suggested, but her friends preferred to take her home and have nothing more done of any kind. On August 4, three weeks after the operation, the opening admitted the little finger, which passed down to the left.

On August 8, the patient was removed home.

Seen at her own home on August 29. She seemed thinner and much weaker, said the wound had been like to close, but had opened up again. Was able to be up.

September 28, not much changed, but complained of excessive discharge (diarrhœa) and some vomiting. Under treatment this passed off.

October 29, my attention was drawn to a swelling at the inner end of the left clavicle of stony hardness. Examination of the abdomen showed a prominence in the epigastrium, and to right evidently a secondary nodule in the liver. To the left of the artificial anus a hard tumour was felt about three inches out and passing down towards the pelvis in the middle line, fixed posteriorly. Nothing was felt abnormal *per vaginam* or *per rectum*. The examination gave no pain. Has been getting dressed twice daily. Was not able to receive anything by the mouth.

November 1, at my visit she was unconscious, and died later in the day.

Remarks.

This case seems to show that an abdominal pattern which is usually visible in cases of stenosis of the bowel is an aid in the diagnosis of the seat of the stenosis, but not so much in long-standing cases where the bowel wall has become markedly thinned out.

The treatment of such cases must be undoubtedly in two stages: preferably a colotomy, *i.e.* incising the colon and fixing the incised colon to the abdominal wall; and enterectomy as soon as the distension has passed off and the bowel considered to be in a suitable condition.

The second stage should not be delayed long nor yet be too early. That was not the difficulty in this case, but it was that of refusal to allow further operation. Had I known this, I should have stitched the incised part of the colon to a fresh wound further out owing to the possibility of trouble from the separation of adhesions as the colon recovered. This trouble, however, did not arise in this case. It was quite out of the question to do an ordinary colotomy where the entire circumference of the bowel is brought out to produce a spur and prevent the escape of fæces, which, of course, occurred in this case, but this was controlled by frequent flushings, till nature shuts off the bowel below.

DEATH OF A CHILD FROM THE PRICK OF A HATPIN

By GEORGE ROSE, M.B., C.M.,
Surgeon, Royal Aberdeen Hospital for Sick Children

ON 30th October, B. M., aged 8, a healthy girl, with good family and personal history, was admitted to the Children's Hospital for an injury to her ear. On the previous evening she had pushed her head against a hatpin sticking in a pin-cushion on the wall. The pin, which was without a head, entered the left ear for some distance, and fell out again of its own weight. On receiving the injury the child screamed, turned round and round, and after a time vomited a little. About a cupful of a clear, watery fluid exuded from the ear. She was seen that evening by a medical man, and next morning by the family doctor, who sent her to the Hospital.

On admission the temperature was normal; pulse a little quickened, but nothing abnormal was observed, nor did the patient seem any the worse of her injury when I saw her at 1 P.M. The following night she slept well, and, although there had been a slight oozing of what gave the reaction (so far as analysis of so small an amount could be performed) of cerebro-spinal fluid, she seemed all right on the following day at 1 P.M. During the afternoon the child got restless, flushed, and at 6 P.M. the temperature was 103°, pulse 130. Eyes were staring, the head retracted, and screaming occurred at intervals. At 10 P.M. the restlessness had increased, the limbs, head, and body were incessantly jerked about, the pupils were dilated and did not react to light. The patient was unconscious at 3 A.M., the movements were of the nature of spasms, the muscles becoming rigid. Pulse 160, temperature 102°. She died at 8 A.M. No necropsy was granted.

I think there is no doubt that the pin penetrated into the subarachnoid space, allowing escape of the cerebro-spinal fluid, and at the same time leaving septic matter which set up a septic meningitis.

Prof. Reid, whom I consulted about the probable track of the pin, says the thinnest part of the tympanum is the roof, which, if pierced, would afford entrance to the subarachnoid space, over the floor of the middle cranial fossa.

The rapid course of the disease after the appearance of the initial symptoms is noteworthy, although not much more rapid than in other cases of septic poisoning. In this case there would be, in addition to the poisonous effect of the ptomaine on the nervous system, the mechanical effect of the micro-organism itself at the base of the brain.

Births and Deaths registered in Eight of the Principal Towns of Scotland during November 1904

DURING the month of November 1904, there were registered in the towns of Glasgow, Edinburgh, Dundee, Aberdeen, Paisley, Leith, Greenock and Perth, the births of 3849 living children, of whom 2014 were males and 1835 females. These births are equivalent to an annual birth-rate of 27.1 per thousand of the estimated population of these towns. The equivalent annual birth-rate in Aberdeen was 30.1; in Greenock, 29.3; in Glasgow, 28.4; in Leith, 28.1; in Dundee, 26.6; in Perth, 26.2; in Paisley, 24.5; and in Edinburgh, 23.0. The births registered in these towns number 214 fewer than in the previous month, but 54 more than in November 1903.

Of the total births, 3593 were legitimate, and 256, or 6.7 per cent., were illegitimate. The illegitimate rate was highest for the month in Aberdeen, 7.4, and lowest in Leith, 5.4. In Greenock it was 7.1; in Edinburgh, 7.0; in Glasgow, 6.7; in Dundee, 6.2; in Paisley, 5.9; and in Perth, 5.5.

Deaths registered during the month numbered 2611, which is equivalent to an annual death-rate of 18.4 per thousand of the estimated population. This rate is 2.2 more than that for the previous month, and 0.7 more than that for November 1903.

The death-rate for the month was highest in Glasgow, 20.1; and lowest in Leith, 14.5. In Dundee, 18.6; in Paisley, 18.0; in Perth, 17.2; in Greenock, 17.1; in Edinburgh, 17.0; and in Aberdeen, 15.7. The death-rate for the month was higher than what it was in the previous month in Glasgow, Edinburgh, Dundee and Perth; and lower in Aberdeen, Paisley, Leith and Greenock.

Of the 2611 deaths, 1060, or 40.6 per cent., were of children of under five years of age, and 616, or 23.6 per cent., were of persons of over sixty. Deaths of children of under five were 147 more than in the previous month, and deaths of persons of over sixty were 82 more than in the previous month.

Deaths of children of less than one year old numbered 682; this is 85 more than in October, and is equivalent to an infantile mortality of 164 per thousand births. This rate is 25 per thousand more than in October. The infantile mortality rate was for the month highest in Glasgow, 188, and lowest in Perth, 75. In Dundee it was 172; in Paisley, 167; in Edinburgh, 140; in Greenock, 131; in Leith, 123; and in Aberdeen, 120.

The seven principal epidemic diseases were during the month the cause of 203 deaths; this is equivalent to an annual

death-rate from these causes of 1.4 per thousand. These deaths are 30 fewer than in October, but 11 more than in November 1903. The death-rate from these causes ranged from 2.1 in Aberdeen to 0.4 in Perth. In Glasgow it was 1.8; in Leith, 1.2; in Edinburgh, Dundee and Paisley, 1.0; and in Greenock, 0.5.

There were no deaths from small-pox registered in these towns during the month.

Deaths from measles numbered 35, which is 10 more than in October. Deaths from scarlet fever numbered 5, which is 7 fewer than in October; from diphtheria 23, which is 5 fewer than in October; from hooping-cough 93, which is 10 more than in October. Deaths from fevers numbered 9, all of which were due to enteric fever; these deaths from enteric fever are 14 fewer than the corresponding deaths during October.

Deaths from influenza numbered 8; this is 3 more than in the previous month, but 6 fewer than in November 1903.

Deaths from puerperal septic conditions numbered 9; from malignant disease, 145, of which 70 were ascribed to carcinoma, 9 to sarcoma, and 66 to cancers not otherwise specified. Deaths from heart disease numbered 224; from apoplexies, 105; from premature birth debility, 72; and from alcoholism, 4.

Deaths from pneumonia numbered 379, and constituted 14.5 per cent. of the total deaths; those from bronchitis numbered 296, and constituted 11.3 per cent. of the total deaths; and those from phthisis numbered 216, and constituted 8.3 per cent. of the total deaths. Deaths from pneumonia were 134 more than in October, from bronchitis 153 more, and from phthisis 10 more than in that month.

The Meteorological Returns for Eight of the Principal Towns in Scotland for the Month of November 1904

Mean barometric pressure, 29.945 inches; greater than the average for the same month of 1856-1900 by 0.109 inch.
Mean temperature, 41°.4; less by 0°.1.
Mean daily range of temperature, 10°.1; greater by 0°.2.
Mean humidity, 86 per cent.; being the average.
Rain, number of days, 16; being the average.
Rain, depth in inches, 1.64; less by 1.82 inches.
Wind, force (scale of 0-12), 2.1; less by 0.5.
Wind, direction of: a 6 days' excess of winds from W.

HENCE the month of November 1904 was characterised by a high mean barometric pressure; an average mean temperature,

with a mean daily range about the average ; an extremely low mean rainfall, but with the average number of rainy days ; a large excess of moderate winds from a W. quarter.

The mean barometric pressure was 29.945 inches, or 0.109 inch above the normal. At Edinburgh the sea-level pressure was above 30 inches from 1st to 4th, on 10th, from 12th to 18th, and on 26th. The highest reading there was 30.491 inches on the evening of the 1st, and the lowest 29.178 inches on the morning of 9th.

The mean temperature was 41°.4, or 0°.1 below the normal, the days being of average temperature and the nights 0°.2 below. The more northerly towns were below their averages, Perth by 1°.8, but those in the Edinburgh and Glasgow areas all somewhat above. From 1st to 19th the prevailing winds were from W. and S.W. ; most of the towns did not register frost during that period ; on the 3rd, Dundee, Perth and Aberdeen had a maximum of 60°.0, whilst at Edinburgh and Glasgow the 13th was the warmest day of the month. The week ending 19th was in most districts fully 5°.0 warmer than usual. From 20th to 26th a notable spell of cold weather occurred, with a defect from the normal of about 7°.0, and lowest temperatures on the nights of 21st and 25th. During this week N.W. winds were predominant. Temperature at the eastern towns never rose to 40°.0, whilst at Perth, on 21st, the thermometer ranged from 13°.0 to 29°.0. After 26th, mild weather again prevailed. The absolute maximum for the chief towns was 60°.3 at Dundee on 3rd, and the minimum 12°.0 at Perth on 22nd.

The mean rainfall was 1.64 inch, or 53 per cent. below the normal, the month being the driest November since 1896. The East Coast had much less than half its average amount, Dundee, Perth and Leith having less than an inch, and Perth only one-fifth of the normal. In the Clyde area there was a deficiency of about 40 per cent. At Aberdeen 0.54 inch was reported on 22nd, but at the other towns about half the monthly amounts were registered between 7th and 10th, Greenock having 1.61 on 8th, and Paisley 1.09. From 1st to 5th and from 11th to 19th hardly any rain fell in the East.

A snowstorm occurred in all districts from 21st to 24th, and the weather during the cold week from 20th to 26th was extremely unsettled. The rainy spell from 7th to 10th was also accompanied by somewhat stormy weather.

A good deal of fog occurred towards the end of the month, and on 23rd a thunderstorm at Gordon Castle.

Meetings of Societies

Edinburgh Medico-Chirurgical Society

THE second meeting of the Session was held on the 7th December 1904—Professor John Chiene, C.B., President, being in the chair.

The following specimens and apparatus were exhibited:—

By Drs Burn Murdoch and Stuart M'Donald: Biliary cirrhosis in a young child.

By Mr Scot Skirving: (1) A simple form of coin catcher; (2) old stereoscopic photographs of cases operated upon by Professor Syme, Professor Spence, and others; (3) specimen of congenital syphilitic disease of the knee-joint.

By Mr Miles: (1) Kidney removed for pyonephrosis due to calculus impacted in pelvis: (2) kidney removed for hydronephrosis due to calculus impacted at lower end of ureter; (3) kidneys removed for tuberculous disease; (4) renal calculus removed from calyx of kidney.

By Mr Caird: Luys' urine separator, with examples of secretion obtained from each kidney.

Mr A. G. Miller read a paper on "The Toilet of the Anus," which appears on p. 10.

Dr Allan Jamieson said that for pruritus ani, cold sponging was very beneficial, as were also injections of liquor bismuthi and starch. In some cases it was necessary to give such drugs as euonymin and iridin, which are useful.

Dr Affleck drew attention to the importance of careful anal cleansing in invalids, also in typhoid fever, cholera, and other infectious diseases. A source of chronic irritation at the junction of mucous membrane and skin must also be borne in mind as a possible cause of malignant disease at this region.

Dr Church considered that everything put within the anus should be perfectly pure, because fluids might be carried up to the jejunum by reflex peristalsis.

Mr Miller's paper was also discussed by Dr William Taylor.

Dr D. J. Cunningham gave a lantern demonstration upon the varying form of the stomach, and endeavoured to show that this was in a large measure a physiological question depending upon the amount of contents within the organ, the degree of contraction of its muscular coat, and the condition of the other hollow viscera within the abdominal cavity. He further pointed out that there was abundant evidence in support of the view put forward thirty years ago by Luschka that the

walls of the healthy stomach were always accurately adapted to the contents of the organ, whether these were solid, fluid or gaseous. But notwithstanding the constantly varying form of the stomach due to the amount of its contents and the condition of its muscular coat, the viscus presents certain constrictions and expansions which are more or less ineffaceable, and which although sometimes obscured by its physiological conditions, are yet, when the peritoneal folds are removed from its curvatures, easily recognised. Dr Cunningham specially called attention to those present in the pyloric section of the stomach, and mentioned that from the time of Willis they had been carefully studied and described by many anatomists, and more especially by Cruveilhier, Anders Retzius, Jonnesco, Eric Müller, and His. He adopted provisionally the somewhat clumsy nomenclature applied to these by Prof. His, but stated that in all probability it would be sufficient to recognise a pyloric canal, or pyloric vestibule, an incisura angularis and a sulcus intermedius; all of which are better marked in the interior of the organ than on the exterior.

Professor Cunningham next discussed the recent paper by Professor His, and exhibited slides which confirmed most of the views of that observer in so far as the empty, the distended and the female stomach are concerned. In the case of the moderately full stomach, however, he considered that Professor His had not taken the degree of distension of the intestinal canal sufficiently into account as a factor determining the stomach-position, and he exhibited slides which proved that the stomach in this state was at least as often horizontal as oblique.

A number of slides were then thrown upon the screen with the view of demonstrating a form of stomach which is now not unfrequently seen in subjects which have been hardened by formalin injection. In these the cardiac portion of the organ is more or less distended and saccular, whilst the pyloric part is firmly contracted and tubular. The demarcation between these two sections of such a stomach is usually accentuated by a more or less pronounced constriction on the greater curvature side of the viscus.

This form of stomach Dr Cunningham considered was in all probability a reproduction in the dead of the gastric conditions which Mr Cannon has described in the cat during the process of digestion, and he alluded in support of this view to the observations of Sir Everard Home on the stomach of the dog, and to the experiments of Dr Beaumont on the celebrated case of Alexis St Martin.

Dr Cunningham also touched upon the vexed question of

hour-glass stomach, and supported the views of Dr Moynihan. He stated that he was of opinion that it had yet to be proved that such a stomach form ever originated as a congenital condition. He believed that usually it was due to pathological causes, and less frequently, perhaps, to spasmodic contraction of the muscular coat. He exhibited two fœtal stomachs with constrictions, which were apparently produced by the latter cause.

Mr Stiles referred to the question of congenital hypertrophic stenosis of the pylorus. The stenosis is due to a tubular thickening, with a muscular coat 3 to 4 mm. thick. The condition is possibly the result of muscular spasm alone, or possibly of hypertrophy plus spasm.

Mr Alexis Thomson said that surgeons practically never see the stomach contracted. The "empty" stomach always contains something, and its walls are flaccid. The surgeon, moreover, does not see the kinks and flexures described by Professor Cunningham. Mr Thomson also referred to the displacements of the stomach, such as the drawing up of the stomach under the ribs in certain cases of phthisis pulmonalis.

Dr Harvey Littlejohn said that the forms of the stomach described by Professor Cunningham could not be due to spasm crystallised at the moment of death. After death there is total muscular relaxation. Thus, immediately after death the heart is in asystole. Later, there is post-mortem contraction of muscle, as seen in the contracted pupils, general rigor mortis of the skeletal muscles, the retracted penis, and post-mortem intussusceptions. The forms of the stomach, as described by Professor Cunningham, may have been due to fixation of the stomach during the stage of existence of rigor mortis.

Mr Caird remarked that surgeons rarely find the pylorus so low placed as Professor Cunningham and His have indicated. One sometimes meets with that form of stomach having a long pyloric tube, but one does not see marked spasmodic contractions of the stomach. Either such spasmodic contractions of the stomach do not occur, or they are very difficult to evoke.

Dr James Ritchie was not prepared to admit that the empty stomach is contracted upon itself.

Dr Affleck said that the size of the stomach varies within wide limits even in health. It is often difficult in some patients to determine the position of the stomach by percussion, and it may be difficult to detect slight degrees of gastric dilatation. Succussion is also sometimes exceedingly fallacious, and he had seen what was apparently gastric succussion sound due to enormous dilatation of the colon. Irritation of the skin over the upper part of the abdomen may often be helpful in eliciting the form of the stomach.

Professor Greenfield thought that Professor Cunningham's methods did not give perfect results. The corrugation of the mucous membrane was possibly the result of the formalin. In determining the size and position of the stomach clinically, percussion in the axilla was of importance, whereas the mere determination of the lower border, in relation to the anterior abdominal wall, was of little value. The kinks and sacs described may be seen in pathological conditions of the stomach, but, in the healthy stomachs shown, had been possibly exaggerated by the methods used.

Dr Gulland said, in regard to Dr Affleck's remarks, he did not think that, as a rule, there was very much difficulty in marking out the limits of the stomach clinically; percussion, especially when combined with auscultation, enabled one to attain a reasonable certainty. He laid stress on the importance of percussing in the lateral directions, and upwards towards the axilla. It was pleasant to find that teachers of anatomy were turning their attention to the position of the viscera and similar practical subjects, as it was his experience that students, even when nearing the end of their course, often had the haziest notions as to the position of the internal organs.

Dr Hunter indicated the results which might be obtained by a more general use of bismuth and X-rays in determining the form of the stomach.

Dr Waterston gave an outline of his researches on the determination of the outline of the stomach by this method. Half an ounce of bismuth powder given in bread and milk yielded negative results.

Dr Rainy said that a drastic aperient must be given prior to the administration of the bismuth. The bismuth must not be too much diluted with food, but should be administered in mucilage of tragacanth. A good deal depended on the efficiency of the X-ray apparatus and on the position of the patient, but the method might perhaps yield a good deal of information regarding the outline of the stomach. He had also employed the method of passing bullets attached to strings, and then using the X-rays.

A CLINICAL meeting of the Society was held in the Royal Infirmary, on the 21st December 1904—Dr J. O. Affleck, Vice-President, in the chair.

Professor Schäfer gave a demonstration of his method of artificial respiration.

Dr Allan Jamieson exhibited: 1. A man aged 44, who had suffered from extensive serpiginous eruption on the chest, thighs, abdomen, and elsewhere. The administration of potassium

iodide for two months had effected improvement but not recovery. The lesions were then scraped, and dressed with calomel and starch paste, whilst potassium iodide was continued internally. This had brought about a complete cure, with almost no scarring. 2. A case of lichen planus: a man aged 51, with a history of gonorrhœa and soft sore, but none of syphilis. The eruption had started on the inner side of the left knee, and had spread to the abdomen, flanks and arms. The eruption, at first as pink itchy spots, was now of a chocolate brown colour. A portion of skin subjected to histological examination showed the changes characteristic of a retrogressive lichen planus. The patient had not been treated with mercury. 3. Photographs of enormous horns growing from the great toe.

Dr Norman Walker showed: 1. Two cases of keloid. In one case under X-rays there had been much improvement, the pain had ceased, and the growth had begun to atrophy. The other case was also improving. 2. Two cases of lupus, illustrating the permanency of results effected by X-rays.

Dr Dawson Turner exhibited: 1. A woman suffering from tic douloureux, which had undergone marked improvement under treatment with static electricity. 2. A man who two years ago had a small growth on the lower lip. The glands were not enlarged. Treatment with X-rays and radium was followed by marked improvement, but of late there had been a slight recurrence, and X-ray treatment has been started again. 3. A case of traumatic flat-foot, with increased power of walking and disappearance of pain after treatment by the sinusoidal current. 4. A case of non-healing ulcer behind the external maleolus of two years' duration. After about six weeks' treatment with X-rays, the ulcer had entirely healed. 5. A case of ulcer of the leg showing improvement under treatment by X-rays.

Mr Hodsdon exhibited a case of primary disarticulation at the hip-joint in a child aged three years. The child had been run over by a tram-car. Mr Hodsdon had given, as he now gives in all cases of severe surgical shock, intravenous injection of adrenalin in normal saline solution.

Mr Cathcart showed: 1. A man aged 45, who for nine months had been completely paraplegic from pressure about the 10th or 11th vertebra. Laminectomy was performed, and the patient can now stand by himself, can walk with the aid of a go-cart, and now suffers very little pain. 2. A case of paraplegia resulting from inflammatory pressure in the cervical region. Under one lamina a quantity of granulation tissue was found and scraped away. The patient has now entirely recovered and is able to work. 3. A patient who had suffered from pyelitis, but who did not improve. Nephrotomy was therefore performed:

the kidney was found to be swollen, congested, and in a condition of suppurative nephritis. The kidney was drained, and since then the temperature had fallen, and the patient's condition had improved generally.

Dr M'Kenzie Johnston showed a patient after operation for extra-dural abscess following mastoid disease. At the operation the lateral sinus on the affected side was found to contain some organised blood-clot, which had apparently been formed one to three weeks previously, at a time when the patient had been able to go about without any discomfort whatever.

Mr Caird showed: 1. A patient after operation for ischæmic contracture of muscles, simulating musculo-spiral paralysis. 2. A similar case in a child of six, after injury to the elbow which had been treated with splints. In this case there was contracture of both flexors and extensors. Great improvement had occurred since the tendons at the wrist had been lengthened after the usual fashion. 3. Patient after extirpation of the rectum and anus by combined abdominal and peritoneal route. 4. A girl aged 21, after operations for perforation of gastric ulcer on two occasions. She was admitted to hospital twenty-four hours after perforation of the first ulcer, which was the size of a threepenny piece, and situated on the lesser curvature. At the second operation, an ulcer, half an inch in diameter and also on the lesser curvature was found. There was now hour-glass contraction of the stomach, and gastro-enterostomy was performed.

Mr Alexis Thomson exhibited a case of gout, with large tophi over the olecranon processes, in the feet, bursæ patellæ, etc. Mr Thomson had removed some of these large masses.

The following specimens were exhibited:—

By Mr Cotterill: 1. Ileo-cæcal intussusception. 2. Two cases of hydronephrosis. 3. Loose body from knee-joint. 4. Malignant disease of stomach and liver from a case of gastro-enterostomy.

By Mr Caird: 1. Rectum removed from case 3 shown at meeting. 2. Tuberculous kidney, with drawings illustrating the results gained by Luys' separator. 3. Preparation of stomach showing posterior gastro-jejunostomy and lateral anastomosis.

Edinburgh Obstetrical Society

THE second meeting of the session was held on the 14th December, and was devoted to a discussion on the Use and Abuse of the Pessary. Dr N. T. Brewis, President, occupied the chair. The exhibition and description of a large number

of pathological specimens occupied so much time that, unfortunately, the members from Glasgow had to depart, Professor Murdoch Cameron having only time to make a few remarks towards the discussion.

Dr George Granville Bantock, F.R.C.S.E., read a communication "In Defence of the Pessary." He referred to two recent papers on the subject, viz., "On the Application of Pessaries and their Dangers," by Dr MacNaughton Jones; and "Pessaries: Their Uses and Limitations," by Dr Giles. Dr Bantock said that the dangers arising from the use of the pessary were due to ignorance, want of skill or carelessness on the part of the practitioner or on the part of the patient. The two authors mentioned seemed to have brought together the *possibilities* of danger as a peg on which to hang a plea for surgical interference, but they were unable to produce any evidence in support of their argument. In the words of one of them, he treated of "the pathological conditions which contra-indicated the use of any pessary, and where its presence constituted a distinct danger." The use of a pessary under such conditions must be regarded as an indication of gross incompetence. When the author spoke of pessaries as a "necessary evil," Dr Bantock entirely disagreed with him. There were only four conditions affecting the uterus which required the application of a pessary: these were, uncomplicated retroversion, anteflexion, retroflexion, and prolapse.

A *displacement*, properly so called, is a departure of the uterus from its normal position. Hence there is in reality only one form of displacement—namely, retroversion. Anteversion of the uterus was not a pathological condition *per se*. The normal position of the uterus with regard to the axis of the vagina was one of anteversion. The majority of writers make no distinction between anteversion and anteflexion, and still it is a distinction with a mighty difference. Yet, strange to say, the distinction between anteversion and anteflexion seemed to be observed; as regards the causation of displacements, little needed to be said, as we were only called upon to remedy the displacement when it had occurred. The only opportunity for practising preventive treatment arose when the subject of a retroversion had become pregnant while wearing a pessary, or who was known to have a retroversion at an early stage of pregnancy. In such a case the patient should not be allowed to lie on the back during the puerperium, and the earliest opportunity should be taken to ascertain the position of the uterus. The frequency of displacement occurred in the following order: retroversion, anteflexion, and retroflexion. Retroversion with anteflexion was so rare that it might be regarded as a curiosity.

Given a case of uncomplicated retroversion, in which the uterus was perfectly mobile, and capable of being raised into its normal position either bimanually or by means of the sound, Dr Bantock unhesitatingly affirmed that the only legitimate treatment was that by a properly adapted pessary. The mania for surgical interference which characterised the present-day gynæcology, the ignorance which prevailed regarding the principles of treatment by the pessary, and the want of skill in its application, had blinded men to the justice of the simple proposition laid down. There was no branch of his work which gave Dr Bantock more satisfaction than the use of the pessary in cases of uncomplicated uterine retroversion, and for these reasons, viz.: absolute *absence* of danger, the relief which it gave in all cases when properly applied, and the prospect of cure in a large majority of cases. That the pessary had to be worn for many years was no valid argument against it.

The time required to effect a cure was in proportion to the duration of the displacement.

Given a genuine case of retroversion, it is necessary to understand the principles of treatment. In all such cases there is a certain amount of descent of the uterus. In a well-marked case the cervix will be found close up behind the pubes, in the axis of the vagina, and with the os pointing to the outlet. In extreme cases the os points upwards as the patient lies on her back. The vagina is shortened in proportion to the amount of descent. The sound affords the best means of restoring its position to the uterus, and for this purpose its extremity should be well bent. An exaggerated condition of anteversion is produced, and while the uterus is in this position the pessary is applied. It is equally necessary that the form of the vagina should receive attention. The instrument which most nearly meets the requirements of the case is the Albert-Smith modification of Hodge's pessary, and, when made of material which can be easily moulded, is all that we could desire. Dr Bantock thought he was justified in calling the "ring pessary" *the abomination of abominations.* Yet it was sold by the gross, while all other varieties were sold by the tens. Its effect was to shorten the vagina, and thereby continue the descent of the uterus. Those who used such instruments never met with a cure, and these formed a low estimate of the value of the pessary. *It was impossible for a ring pessary* to cure a simple case of retroversion.

Want of skill in the application of pessaries is answerable for much of the want of success in pessaries. They were often introduced upside down or even doubly reversed.

The only treatment for a rectocele was a repair of the perineum, but for cystocele we had a perfect support in the

diaphragm pessary, and Dr Bantock had had excellent results from its use in cases of elongated cervix as well as in cases of cystocele.

It seemed hopeless at the present time to expect that the age of anteversion pessaries would soon end, or of vaginal pessaries for retroflexion and anteflexion, yet a moment's reflexion would show that it was impossible to influence for good either of these conditions. Anteflexion was not a displacement, but a malformation, and must be treated from within. For this purpose the intrauterine stem pessary (preferably Meadows') was often of great service. Anteflexion was, however, rarely dissociated from narrowing of the canal, and so this instrument was rarely used by the author. The narrowing might be only temporary or more permanent, in which case the internal os was extremely rigid. In such cases the process of dilatation was often accompanied by retching or even vomiting. Such cases were not suitable for the stem pessary, but for gradual dilatation.

Failures in every respect have attended operations for displacements—*e.g.* death of the patient; failure to effect cure or to relieve symptoms; abortion from imprisonment of uterus; rupture of uterus from same cause; Cæsarean section rendered necessary; return of the displacement after a succeeding pregnancy. Dr Bantock affirmed that an operation which was certainly not one of necessity, or even of expediency, which involved so much risk of life and actual disaster, and which placed the uterus in an ***unnatural position***, was not a justifiable one.

When a retroversion was complicated by adhesions, inflammation of the appendages, etc., it was not the version which called for treatment, but the complications. Yet in his hands the pessary had given most gratifying results in a considerable number of such cases.

The pessary was also an important aid in the treatment of sub-involution, so often associated with or if not due to the retroversion.

In cases of ***retroflexion***, no vaginal pessary could be of any service in undoing the flexion, and in these rare cases Dr Bantock was in the habit of using Meadows' compound stem pessary, and with these the oft-accompanying menorrhagia was actually benefited. In a case of true retroflexion a vaginal pessary simply aggravated the flexion by still further doubling the uterus on itself.

The most suitable material for the pessary was, Dr Bantock said, britannia or white metal. The shape was readily altered and maintained, and the metal became black if there were any muco-purulent discharge.

The pessary, when properly used, involved no danger whatever, but was worthy of full confidence; that the charges brought against it could not justly be maintained; that in its results it compared most favourably with the operations which had been substituted for it; and that it entirely misrepresented the case to say that "the operative measures" to which Dr Bantock had referred "did all and more than all that pessaries" could do, without their manifold drawbacks and risks.

Professor Murdoch Cameron said that he believed in pessaries when they were properly used. He, however, would not use a cystocele pessary at all, as in many cases it would act as a guillotine to the cervix. He had had to cut through the cross bar in such pessaries to free them, and had even found that they had eaten their way into the peritoneal cavity. Neither boots nor pessaries always fitted the wearer. He employed with advantage the boat-shaped pessary in cases of cystocele. The ring pessary was very frequently used, and certainly did good in many cases of prolapse when any operation was refused, the only danger being in employing too large a size. A patient wearing such a pessary only required to be seen once in six months, though a daily douche was necessary. He would never allow a patient to introduce a pessary herself, as they very frequently introduced them wrongly. In one instance he had to remove a pessary introduced into the rectum by a medical man. He was in favour of treating retro displacements in young married women by postural treatment, and by the introduction of a pessary five or six days after parturition, and keeping it in for six months. When using a stem pessary it was absolutely necessary to employ also a Hodge pessary in order to keep the cervix back.

Professor A. R. Simpson said that he was in sympathy with Dr Bantock in the general grip of his paper, and was glad to hear that he had laid stress on the absence of complications in displacements. Such uncomplicated cases were, however, not frequently met with. There was usually some other condition associated with the displacement. He personally preferred the vulcanite pessary. He thought that Dr Bantock went a little too far in stating that there was no danger in the use of the pessary. Simply to keep the uterus in place often relieved the congestion present. In other cases, however, the pessary did no good, and in many cases could not be retained, owing to sensitiveness of ovaries, etc. He thought that shortening of the round ligaments or ventrifixation were useful in certain cases. One ought not to denounce operations as if they ought never to be performed, nor yet say that the pessary was useless. There were drawbacks to the use of the pessary, as that the patient might not have it seen to at intervals of six months, and the instrument might in years subsequently

become dangerous, as for instance, after the menopause, when a general shrinking of the genital organs occurred. In such conditions a pessary which perhaps once did good, then might ulcerate into the pouch of Douglas or into the rectum.

Dr Berry Hart thought that anteflexion was one of the normal positions of the uterus, and that there was a certain field for the use of pessaries as in the nulliparous, and after a recent labour.

Professor Kynoch said that there were two requisites: (1) correct diagnosis, and (2) knowledge of the mechanism of the pessary. He thought that in cases of marked anteflexion the symptoms were best treated by dilatation of the cervical canal and curettage. In retroversion the pessary formed the most important treatment. Many cases of repeated abortion were not due to specific disease, but to backward displacement of the uterus, and if such were seen early enough, a cure might be effected. In the menorrhagia of retroflexion a pessary often gave a cure. The inflammatory symptoms were, however, best treated by other means, and then the good result might be maintained by the help of a pessary. He thought that operations for displacements were not very satisfactory, as in many cases the patients had to do very hard work, and it was absolutely essential that prolonged rest should be given after operations for the cure of displacements. Operative treatment during the child-bearing period ought to be very limited, but if the patient could rest sufficiently long he thought that ventrifixation did good. A fixed retroflexion of the uterus was often associated with inflammation of the tubes and ovaries, and hence operative interference gave the best results in such cases. He preferred vulcanite as the material for the pessary.

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Dr Freeland Barbour said that the pessary was a splint to keep the uterus in position, and it was his experience that when the pessary was removed the uterus went back to its abnormal position. There might be a certain number of cures, but they could not be numerous. A pessary only acted on the cervix, and so in many cases you found that the body of the uterus was still lying back over the pessary. In the treatment of displacements the question of the patient's comfort had to be considered, and this might often affect the question of operation. Operative interference had become very common, because it could be done so safely and easily. The tendency was therefore rather to operate when it might not be absolutely required. In some cases, however, an operation was really required. He had found that shortening of the round ligaments was useful in many cases, and was especially to be recommended when the abdomen had to be opened for other reasons. He thought that one's practice ought

to be (first) to treat by pessaries, and (secondly) to operate when the pessary treatment had failed, or for some other reason.

Dr J. W. Ballantyne said that there were cases distinctly cured by the use of the pessary, while others were only cured by operation. Retroversion of the uterus formed the subject of the discussion between the employment of the pessary and operative treatment. He thought there was great danger of routine in the treatment of displacements by pessaries. The pelvis should be examined carefully each time the pessary was replaced, and he concluded by saying that pessaries were necessary, and were not necessarily evil.

Dr F. W. N. Haultain said that in the treatment of retroversion the Edinburgh School would endorse Dr Bantock's treatment, and so there was no question of operation. It was very different, however, as regards the treatment of retroflexion, for then pessaries were only of use in from 12-15 per cent. He thought that the intrauterine stem pessary was extremely dangerous to use, as inflammation, or at least extreme discomfort, was set up, and he preferred ventrifixation to this treatment. The risk of operation was very small, and so the choice lay between chronic invalidism *versus* operation. Shortening of the round ligaments or Alexander Adams' operation were quite satisfactory. Three or four silk sutures were placed in each round ligament in the anterior wall, and the adhesions thus induced did not give way, and these operations formed no complication to a future pregnancy. The object was to restore the patient to health, and he thought that when there were symptoms of retroflexion present then operation was advisable.

Dr James Ritchie said that he had not employed a stem pessary for fifteen years, and that he only made use of a pessary when the symptoms demanded it.

Dr Haig Ferguson said that before introducing a pessary one must see that the organs were replaceable, and, secondly, that the pessary held them up and gave rise to no pain. If the uterus were pushed up too far by the instrument the same symptoms might be complained of as when the uterus was prolapsed. A pessary ought to be employed not only as a palliative, but also as a curative agent, and one should only operate when pessary treatment has been found to have failed. A pessary might do harm stretching the utero-sacral ligaments. He thought that an uncomplicated retroversion of the uterus gave rise to no symptoms. If symptoms were present, then there must be some other pathological condition, as incarceration, adhesions, etc.

Dr Scott Carmichael narrated Professor Martin's treatment of displacements; and

Dr George Hunter described the tests he employed to determine whether a pessary fitted the patient.

Dr Brewis congratulated the fellows on the interesting nature of the communication and on the discussion which had followed. He stated that he had performed the operation of shortening the round ligaments in more than one hundred cases, and in the great majority of these no recurrence of the displacement had occurred. Uncomplicated cases of retroversion were not suitable for any form of internal operation.

Dr Bantock replied, and thus a profitable and interesting discussion was brought to an end.

Royal Medical Society, Edinburgh

AT a meeting held on November 11th, Dr H. N. Fletcher delivered his Presidential Address. After thanking the Society for electing him Senior President, he sketched the History of Early Egyptian Medicine, and gave an account of the methods of embalming employed by the Egyptians. He continued by showing how the Egyptian school influenced the Persians and the Greeks, and, through them, the Romans; and how the science was again renewed in Europe as the result of the diffusion of the Arabic philosophy. Dr W. J. Stuart proposed, and Dr D. C. L. Fitzwilliams seconded a hearty vote of thanks.

Notes of cases were read by Dr D. P. D. Wilkie and Mr Barcroft.

AT a meeting held on the 18th of November, Dr A. C. Geddes delivered a Presidential Address on "Waste." He defined the term "religion," and traced the evolution of religion. He next discussed the state of morals amongst all classes, and concluded by describing Metchnikoff's theory of longevity. A hearty vote of thanks was proposed and seconded by Drs A. C. J. Woodward and D. P. D. Wilkie.

Dr L. S. Milne read notes of two cases of drop-foot, in which the diagnosis was obscure.

Dr R. H. Johnston read a dissertation on venesection. He first sketched the history of the subject, and then gave the modern views on the subject.

AT a meeting on the 25th of November, Dr Robert Hutchison gave a lantern demonstration on the diseases of children. He

commenced by showing slides of different conditions arising out of disorders of nutrition; he then showed cases of chest deformities, and of such conditions as rheumatism, rickets and syphilis, and went on to show a very complete series of nervous cases. Dr Hutchison concluded by exhibiting some very beautiful examples of hydro- and micro-cephaly and of sarcoma. Mr Alexander Miles proposed, and Dr Macrae Taylor seconded a very hearty vote of thanks. Dr Hutchison, in reply, recalled the days when he was a senior president, and emphasised the importance of a knowledge of the diseases of children in general practice.

Dr Geddes read notes of a case of malignant growth, and Dr L. H. I. Bell read notes of a case of tubercular nephritis.

AT a meeting of the Society held on the 2nd of December, Dr H. J. Dunbar delivered his Presidential Address on the History of Surgery in Edinburgh. He first considered the early history of the University, and stated that the first intra-mural teacher of surgery and anatomy had a doubtful status. He then went on to describe the disputes between the physicians and surgeons at that time, and to give a history of the three Munros, who held the Chair of Anatomy in succession, and a description of their characters. He referred to John and Charles Bell, Liston and Syme, and concluded by discussing the origin of the old and new Infirmaries. Dr Carnegie Dickson proposed, and Dr H. D. Shepherd seconded a hearty vote of thanks.

The Society then discussed Dr Geddes' Presidential Address, and decided by a large majority that it did not afford a rational basis on which to approach sociological problems.

Glasgow Obstetrical and Gynæcological Society

THE second ordinary meeting of the Society was held on November 23—the President, Dr J. K. Kelly, in the chair. There was a fair attendance. The following specimens were shown:—(1) By Dr Edgar, a blood-cyst from the left hypochondrium of a woman, which in position and nature resembled a pyonephrosis. Operation showed that it was an encysted collection of blood among the coils of the small bowel. It had formed in the latter months of pregnancy, and might be due to a rupture of a vein in the pampiniform plexus. (2) By the President, a myoma of the uterus from a woman between 40 and 50 years, showing myxomatous degeneration in its substance. Dr Kelly also showed a multiple myoma from a woman of 38, a parovarian cyst which had suffered complete torsion of

the pedicle, and a very large tubo-ovarian cyst filled with pus and tubercular in character. (3) By Dr Balfour Marshall, a large collection of mucous polypi removed from the vagina of a woman four years past the menopause. They had caused no bleeding.

Dr A. W. Russell read an account of a case of epilepsy in an adult female with double ovarian tumour. Removal of the growths was followed by cessation of the attacks. The patient was a woman of 30, who for three years at least had suffered from genuine epileptic attacks (grand mal). Menstruation was rather scanty. She was put on bromides and kept fairly well, having occasional fits, till June 1903, when she had a sharp attack of peritonitis when away from home. It was now found that there was a tumour of some size in the abdomen; she was brought back to Glasgow, and as soon as she could stand it, Dr Russell operated and removed a large double ovarian tumour. Microscopic examination showed the presence in places of a cylindrical-celled carcinoma. The patient made a good recovery, is still well, and has had no more fits. The case was discussed by Drs Cameron, Douglas, and the President, and Dr Russell replied.

Dr Donald Duff described a case of uterus didelphys and septate vagina. The patient was an unmarried woman who came to the out-patient department of the Royal Infirmary, complaining of pain in the vagina and on making water. There was yellow discharge, and an acute vulvitis and urethritis, evidently gonorrhœal. The treatment was mainly by protargol and iodoform, and improvement resulted, but pus always came away. In January, when she was being examined, a small opening was found to the left of the ostium vaginæ, and a probe introduced revealed a second vagina, as long as the first, and full of pus. There was a cervix at the top of each, and the septum was complete. The patient married, and had an abortion at two and a half months, probably from the right side. The uteri could now be better explored, when it was found that the right was 2¾ inches long and the left 1½ inches. The septum was complete. Since this the patient has contracted syphilis. Dr Duff referred to the rarity of such a condition, and concluded with an account of the development of the genital tract and its bearing on such malformations. The President and Drs Jardine and Russell discussed the case, and Dr Duff replied.

Dr Balfour Marshall read short notes of a case of a woman of 60 years, who came to hospital complaining of pelvic pain, dysuria, and blood-stained discharge. The symptoms were suggestive of malignant disease, but on examination a vulcanite

ring pessary, deeply embedded in the vagina, was found to be the source of trouble. The ring was removed with a little trouble, and looked quite clean. It had been introduced 15 years previously for a prolapsus, and had been forgotten.

Dr A. W. Russell read notes on two cases of fibroid tumour, one a large fibro-myoma of the uterus, which caused pain and dysuria, the other a fibroid tumour of the pelvis. In both, large tumours were successfully removed. Dr Russell stated that he would complete his paper on another evening, giving details of certain other cases of fibroid tumour, where general rather than local symptoms predominated.

Glasgow Pathological and Clinical Society

THE third ordinary meeting was held on December 12—the President, Professor Robert Muir, in the chair. There was a good attendance.

1. Mr Maylard showed (*a*) a case of cervical fistula communicating with the pharynx. The patient was a girl of 16, and no definite cause could be assigned for its onset. It had existed nine months, showing first as a little round swelling which opened on to the surface, causing the fistula. As possible causes there were : a pharyngeal diverticulum ulcerated through; a branchial cleft fistula ; a lymphatic gland ulcerated from the outside; and traumatism. The girl was taught to feed herself by the stomach tube, and the fistula healed naturally. (*b*) Mr Maylard also showed a young boy who suffered from extravasation of urine, the result of an impacted calculus in the urethral meatus. A fistula resulted, and perineal section was done at this point. The cases were discussed by Drs Renton, Rutherfurd, Logan Taylor, and the President.

2. Dr James A. Adams showed a boy of 16 on whom he had performed excision of the right lower jaw for sarcoma. The boy was admitted to the Royal Infirmary in September 1904 with a hard rounded swelling of the lower jaw of six months' duration. It seemed to be covered with bone ; there was no enlargement of the glands. A tooth was removed and some pus evacuated, but without improvement. Examination of a small piece removed showed that it was an adeno-sarcoma, undergoing myxomatous changes. The jaw was therefore removed, a tube being left in for a week. Recovery was good. Professor Muir said the sections showed solid processes of cells, which to his mind suggested origin from a mal-developed tooth.

3. Dr Crawford Renton showed (*a*) two prostates removed

from patients aged respectively 76 and 60 years. In the first case the operation was easy, in the second very troublesome. Both cases did very well. Where there was considerable bladder distress, and where the patients were otherwise well and with healthy arteries, the operation should be done; in other cases not. Dr Renton said he preferred the upper route. (*b*) A second case was that of a central sarcoma of the tibia in a middle-aged man, who had practically no symptoms. Amputation was advised but declined. Shortly afterwards, however, the patient broke the bone, and then consented to have the leg removed. Skiagrams and sections were shown, the latter indicating an endothelioma with considerable vascularity, a kind of angio-sarcoma, in fact.

4. Dr Rutherfurd showed the specimen, and described a case of appendicular abscess, where a fish-bone was possibly the cause of mischief. The patient was a man of 37, with an acute appendicitis, and operation was done on the sixth day. A large abscess was found, and at the bottom of this a slender body like a fish-bone, which must have penetrated the ileum. Dr Rutherfurd also showed a tumour of the cæcum, the clinical course of which simulated an appendicitis.

5. Dr Teacher exhibited a specimen of multiple carcinoma of the intestine.

Glasgow Southern Medical Society

THE sixth ordinary meeting was held on December 15th—the President, Dr Jas. Hamilton, in the chair. There was a good attendance.

1. Dr T. K. Munro gave a short paper on "Neurasthenia," a condition difficult to describe precisely, but which he defined by a summary of the clinical features of several typical cases. Of types there were several, such as the cerebral, with giddiness, sleeplessness, headache, feelings of fear, and inability to think or initiate; the spinal, with pains in the back and legs, tender spinal spots, paræsthesia, and altered reflexes; the cardio-vascular, with palpitation, flushing, throbbing of the abdominal aorta, and sweating; the gastro-intestinal, genital, and so on. In not a few cases there was floating kidney, or enterophosis. The pathology was obscure, but as a rule there was some preceding condition which produced great nerve-fatigue. The prognosis in general was good, but it was an expensive illness. It did not, in any case, directly shorten life. Mild cases were treated by change of air, light exercise, and a tonic; but severer cases required special treatment, with prolonged rest, abundant

feeding, and massage. Bromides, valerian and arsenic might be of use. The value of electricity was probably over-rated. Relapses were common.

The paper was discussed by Drs Howie, Carstairs Douglas, Highet, Halliday, Stewart, Dunlop, MacGillivray, Weir, and the President, and Dr Monro replied.

2. Dr Leslie Buchanan read notes on three cases of successful magnet-operation for foreign body in the eye, in which good vision was obtained. The first case was that of a young lady who was injured by a piece of tin (wrapped round the detonator of a Christmas cracker) entering the eye. It was located and removed by the electro-magnet, the edges of the wound trimmed, ice-cold dressings applied, and the pupil kept dilated by atropine. By this means an eye was saved which would otherwise have been completely lost. The result as to vision was that of a successful cataract operation, and with glasses full vision, both near and distant, could be obtained. Dr Buchanan said this was a very good result, and described two other cases where fair results also followed. Foreign bodies of this kind did harm either by carrying infective material and setting up a suppuration that might destroy the whole eye, or by acting chemically, as, for example, copper did. Not more than 5 per cent. preserved good vision. The paper was discussed fully by Dr Andrew Wilson.

3. The third item of the evening was a short paper by Dr Weir on metacarpo-phalangeal dislocations.

Forfarshire Medical Association

AN ordinary meeting of this Society was held in the School of Medicine on Thursday, 8th December, at 8.30 P.M., Dr Kinnear in the chair.

Dr G. W. Miller showed a case of exophthalmic goitre in a young woman, in whom all the typical symptoms were well marked. The exophthalmos was very distinct, as was also von Graefe's sign, tachycardia, an extensive cardiac impulse, pulse 130-140. The thyroid gland was greatly enlarged, with distinct thrill and systolic murmur.

Mr Greig showed a boy of 3½ years with double rachitic coxa vara. Though presenting few signs of rickets other than slight thickening at wrists, beading of ribs, and prominent abdomen, the changes in the trochanters were well marked. The chief points demonstrated were an abnormal amount of flexion at hips, with limited extension and abduction, and great increase of

adduction. He sat always in the sartorial position, and when laid flat, extension of the limbs caused arching of the back. When extension was complete, the patellæ were seen to look outwards and even slightly backwards. Any attempt at abduction caused the pelvis to be tilted. The amount of adduction and flexion was so great that his legs could be bent behind his back, and his feet brought round his neck. A foot could also be easily put into the axilla of the opposite side.

Professor MacEwan exhibited a specimen of colloid cancer of the stomach, which involved nearly three-quarters of that organ, and was removed at time of operation.

He also showed a large meningocele removed by operation. The child lived for three months afterwards.

Professor Kynoch showed specimens of an unruptured tubal pregnancy which had resulted in the formation of a tubal mole; and a pyosalpinx which proved to be unilateral.

A series of card specimens from the Pathological Museum were exhibited by Professor Sutherland.

Dr Macfie then read a paper on "The Utility and Futility of Sanatoria." (See p. 23.)

A letter was read by the Secretary from Dr Urquhart, in which he gave his experience of the treatment of phthisis in the insane in Sanatoria. He mentioned that the great difficulty of diagnosing early tuberculosis is increased in asylum practice by the mental complications, and gave cases illustrative of this. During seventeen years between 1880 and 1897, ten cases of phthisis were under treatment in Murray's Asylum, all of which except one were diagnosed on admission. In 1897 a very bad case of phthisis was admitted, and owing to his dirty habits he was responsible for the development of the disease in six other patients. It was then decided to build special sanatoria for the treatment of phthisical patients, and the results have been most satisfactory and encouraging. Dr Urquhart did not consider that the use of tuberculin as an aid to diagnosis in asylum practice was warrantable.

Dr Rogers gave an account of his experience of the open-air treatment at Davos Platz, where the patients are allowed to go about all day, take plenty of exercise (except in hæmoptysis cases), and eat plenty butcher-meat. He discussed open-air treatment in patients' houses, and said that one great fault was having too much furniture in the rooms. He wished to know if there was any special advantage in a southern exposure?

Mr Greig was of opinion that errors in diet, especially in those who went in for over-training, might give rise to increased susceptibility to tuberculosis.

Dr Miller thought that the chief difficulty in home treatment

amongst the poor was inability to get proper and sufficient nourishment.

Dr Halley said he was struck with the pessimistic view Dr Macfie took of the sanatorium treatment of the poor. He considered that at all events it was a most valuable means of education, and after a short stay in a sanatorium they would appreciate the value of more light and more air in their own homes.

Professor M'Ewan thought that too much was expected from a sanatorium, and the mistake most patients made was that they did not stay there long enough. Two or three years of special treatment was required for a cure.

He questioned the advisability of over-feeding, especially with butcher-meat, as it might give rise to renal trouble, and mentioned a case in point.

Dr G. Whyte spoke of the improvement that always took place when a patient began open-air treatment, the cough being greatly diminished, and the night sweats cease.

Dr Macfie, in reply, stated that he did not consider there was any special advantage in a southern exposure; sunshine was not imperative, but a good draught of fresh air. He emphasised the importance of after-treatment; should have at least six months in sanatorium and eighteen months' to two years' great care. Supervision in feeding was also necessary, and not too much left to the desires of the patient or the friends.

Special Articles

"EDINBURGH REVISITED"

By an Indian Medical Servant

It may be said that members of the Indian Medical Service, as members of the profession go, have singularly good opportunities of paying extended visits to their old School; the furlough system, though somewhat erratic in its application, allowing them the chance of a longer stay, and of greater freedom from business worries, than falls to the lot of most of their old colleagues who are in private practice. And it will be readily believed that men who have to go so far afield, who have to serve in so many departments of professional labour, and have seen how men of different medical Schools comport themselves therein, will have much to say to one another when they meet in twos and threes, as they often do, in the wards and theatres of the old School, and that they do a good bit of criticising at

such times. And that criticism, based, as it always is, upon the fondness they have for their Alma Mater, and the desire they have to see her sons do well wherever they go, is not unnaturally inclined to turn upon the strong and weak points of the Edinburgh system of training, as shown by the Edinburgh men in competition with others.

The present article is written by one who feels, not that he has better opportunities of judging how medical students ought to be trained than those whose life work it is, but that from a point of view different from that of most who are interested in the subject, he may be able to contribute something to that constant discussion of the subject of future improvement of the curriculum, the existence of which is one of the healthiest signs of the times in Edinburgh.

It is a common enough accusation to hear brought against old-established institutions that they are not keeping up to the requirements of the age. But it is a far more serious accusation to bring against an institution to say that it is not improving itself in proportion to the resources put into its hands; and yet the visitor to Edinburgh is apt to be a bit disappointed to find things so very much as they were before those resources were forthcoming.

So much on the surface do many of Edinburgh's defects lie, that there are many points on which a "Service man" will make just the same criticisms as any other visitors to Edinburgh, and by many of the teachers of the School. Most of them are just those one would expect of an old-established and prosperous institution, depending on a lack of adaptability to changed times and needs, rather than to any essential unsoundness in its system.

First and foremost comes the oft-repeated criticism that the wretched student is over lectured. In the old days, when text-books were few and expensive, the information on a given subject limited, and the time of the student not so heavily drawn upon for clinical and practical work, the lecture was the one great and useful means of conveying systematic instruction. Times have changed. Text-books are written for the student by specialists in teaching as well as in the practice of their own particular subjects, the information to be had on each subject is vast, and the student has many opportunities for clinical and laboratory work his predecessors never had, and that make great calls upon his time and his endurance. And yet he has still to bear the same load of lectures, in addition to all his more modern burdens. It is often said that instruction can in many ways be best conveyed by personal lecturing, and that difficult points are more readily understood when explained through the

medium of a teacher than through books. This is true, and no better evidence of the value of lecturing as a means of systematic as well as of clinical instruction can be adduced than the popularity of the tutorial lecture among the better class of students. But it is one thing to advocate lecturing on the rudiments of a subject, and showing the broad lines on which it should be studied, and even supplementing the student's knowledge of it by lectures on practical details that are essential to success, and it is quite another thing to lay it down that the whole of a large subject is to be exhaustively treated in a course of lectures, in which the students are to expect the whole of their knowledge of that subject to be contained.

Closely connected with this is the question of the important relation of the lecture to the Professional Examinations. As every Edinburgh student soon gets to know, and as every extra-mural teacher has to keep in mind, the papers in the University Professionals consist for all practical purposes of questions set from the Professors' lectures. What the Professor has laid particular stress on, that the student gets up as a matter of business (the writer is sure he was not the only student who ever "spotted" questions in the Professionals); and, conversely, what the Professor has touched on but lightly, or left out altogether, that the over-driven mortal for whose benefit the whole of this system is supposed to exist knows he in his reading may touch on very lightly indeed.

Even from the family point of view, so to speak, this system has its drawbacks, but it is when the graduate goes elsewhere and has to work for other examinations, competitive and otherwise, such as, for example, the examinations for the Services and for the London Fellowships, that he comes to realise that there are more things in Medicine and Surgery than he had dreamt of when he finished running over his notes of Professor So-and-So's lectures for the last time before going up for his Professional Examinations. Many an Edinburgh graduate working for the Service or other examinations in London begins to learn certain subjects from text-books for the first time in his life, and wishes he had had a better idea beforehand of what the generally accepted ideas on those subjects are.

It is no light suggestion to make that changes should be introduced in the lecturing and examining system, seeing that such changes would necessarily affect the present over-mastering influence of the professoriate in the matter of the student's education. But if, on the one hand, the student is to be able to survive the physical strain of the modern course in Medicine and Surgery; and if, on the other hand, he is to leave the

School equally well equipped to undertake private practice or to compete in examinations with men of other Schools; his back must be lightened of some of its burdens, that he may better carry the others. And that lightening must not only take the form of alteration in the methods of conveying knowledge; it must in the future consist also of a lessening in the amount of detailed knowledge of certain subjects demanded of the student. Let us take the case of the teaching of Physiology. A generation or two ago it was quite right to teach the student everything that was known about Physiology, for he could find time and energy to do full justice to the rest of his course. To-day he cannot. And yet he must acquire and show what can only be described as a specialist's knowledge of Physiology before he is allowed to devote himself to the rest of his course. Even apart from the point of view of its crowding aside other subjects by taking up an undue proportion of the student's time and energy, one cannot help thinking that the enormous amount of detail into which the present teaching of Physiology goes, tends in the long-run to defeat its own object. So many of man's inventions in the realms of Experimental Physiology are thrust upon the student's attention nowadays, that in the period wherein his recollection of what he was taught begins and continues to fade, and which dates from the passing of his Professional Examination, a good many of the central and essential facts of Physiology are apt to fade away too, lost among that crowd of details about experimental machinery, about tambours that spun round and spots of light that danced on screens, of which so confused a recollection is apt afterwards to remain. We have always been proud of the high level maintained in the teaching of Physiology in Edinburgh, and of the distinguished names that are associated with it, but one is not by any means always sure that the Edinburgh man in the long-run retains a clearer knowledge of the essential facts of Physiology than many men trained in Schools where the subject has been less brilliantly taught.

And if it is assumed that this view is correct, that there are subjects the teaching of which is, from more points of view than one, overdone, we are confronted with much the same difficulty alluded to before, the autocratic position of the professoriate in the matter of lectures and professional examinations. One cannot well blame a given Professor for taking a too enthusiastic view of his opportunities of teaching and examining students in the subject to which he has devoted his life; but one does feel inclined to say that there is something needing amendment in a system which does not provide more efficient control over the curriculum and the examinations by that large body of pro-

fessional opinion represented on the Governing Courts of the University.

As examples of conditions requiring rebalancing and re-adjustment, the following may be taken :—

It is still a fact that a student dare not neglect to get up the subject of the development of ferns and mosses for his First Professional, but that later on the same student may safely neglect the subject of infant feeding when working for his Final. Again, Practical Zoology is a compulsory subject, the clinical study of Diseases of Children only alternatively so; that so many students do clinically study the diseases of children shows their good sense, but the study of so vital a subject should not be left to the option of men, the great mass of whom are going to be family practitioners. The public, no less than the profession, has a right to demand this, and many a practitioner has regretted that it was not the fashion to teach students a little more about infants, healthy and otherwise. In truth, the baby has rather a bad time of it in a student's course. Fashions are harder things to change than regulations, and it happens to be the fashion to speak in obstetrical parlance of the infant as something of which, as of the placenta and membranes, it is our privilege and our duty to *deliver* our patient. We lose sight of the infant very soon during our instruction in Obstetrics, and we do not come across it again till we find it in the wards of the Sick Children's Hospital as a small boy or girl. The student has always been taught much about the fœtus, and can nowadays also learn much about the growing boy and girl in the most excellent courses of instruction given at the Sick Children's Hospital; but about the infant, so important a personage to the practitioner, there is no certainty of his receiving any but the scantiest and most scattered information. Let anyone ask a few senior students by what age a normal child should have learnt to walk, how often at a given month an infant should have the breast, and a few other very elementary questions, touching not necessarily the pathology, but only the physiology and management of childhood, and he will see what varying answers he will get.

Reflections on the scantiness of instruction for students concerning infants, their physiology and their ailments, are not generally of the arm-chair variety; they arise when one is engaged in one of those struggles with death, to fit himself for which the student undertakes his five years' course. "I wish to goodness I knew more about babies!" is a remark the young practitioner only too frequently has reason to make to himself while he is acquiring, from books and from personal experiences, the knowledge required to fill up a marked hiatus in his

student training. One would like to see a short course of lectures of the tutorial stamp instituted on the physiology, pathology and management of infant life.

There are several subjects about which, as things are, a student may pick up here and there some information during his course, but about which he is not regularly instructed, and his knowledge of which is never tested. One may instance the kindred subjects of Dietetics and of Sick-room Cookery. As to the former, how common in practice are such questions as "Do you think that's a suitable food for a child of his age?" or "What am I not to eat, then, doctor?" As to the latter, some of us remember the late Professor Grainger Stewart's description of the young medico who has ordered barley-water for his patient, and is asked by the anxious relatives how it is to be made, and his vain attempt at a reply. "Well, you er—take some barley, and er—some—some water, and er——"

One would not, of course, suggest that for the study of such subjects one moment should be taken from the time spent over that most important subject of all a student's work, the Clinical study of the Diagnosis of Disease. But one is entitled to consider that in a five years' course some hole or corner of a student's time might be found wherein he must (and not merely may) study things he has to get up a knowledge of somehow before he is an efficient practitioner.

One thing a "Service man" revisiting Edinburgh always wants to find out is, "What is wrong with the teaching of Surgery in Edinburgh?" There must be something, for there can be no doubt that there is a feeling in the Services that an Edinburgh man is not to be expected to be as well up in Clinical and Operative Surgery as a London or a Dublin man. Now, this is not the result of mere prejudice against a "provincial School," for the same is not the case with regard to Clinical Medicine, of which an Edinburgh man is expected to show a very good knowledge; and as for Bacteriology, one of the largest laboratories in India has been referred to in a grumbling way as a "preserve for Edinburgh University." Yet the complaint was not a fair one. The fact that all the men selected for the laboratory staff were Scottish University men was entirely due to the fact that it was they who knew most about Bacteriology.

What is the reason of this inferiority in Clinical and Operative Surgery of which the Edinburgh man is accused? As regards Clinical Surgery, if one begins to investigate the causes, one comes pretty soon to the proposition that the senior student cannot do justice both to Clinical Medicine and Clinical Surgery, because the work in both goes on at the same time of day.

Justice is done to Clinical Medicine, and so Clinical Surgery suffers. And if one pursues the investigation far enough to ask why, say, the Professors of Clinical Medicine and their students cannot meet each other at some other time of day, one is met by the reply that at other times of the day both Professors and students are engaged elsewhere, the one in delivering lectures and the other in taking down notes on the other side of the Middle Meadow Walk. And one sees another instance of how the tradition of professional lecturing is maintained at the expense of the best interests of the student.

As regards Operative Surgery, a reform designed to enable the student better to appreciate and profit by the constant opportunities he has of seeing operative work done, might be effected without any change of a radical nature being necessary. What is wrong is that the Systematic course in Operative Surgery is the last course a student takes, and that he takes it, not at a time when he is fresh and keen, but just before his Final, when he is fagged, anxious, and in no condition to do justice to a new subject, however important.

It is a truism to say that a student who has already systematically studied a subject is better able to appreciate practical work in that subject than a student who has not. Every teacher of Surgery knows the difference between the appreciativeness of senior and junior students. The reason why students get so much less benefit than they might from the large amount of time they conscientiously spend in the enervating atmosphere of the operating theatre is that they come unprepared for what they are going to look on at by any systematic study of the subject. "Eyes have they, but they see not." A glance at the faces of the students present in crowds on the benches of an operating theatre will suffice to illustrate this point. Their expression is not suggestive of men who know what they have come to look at; it is rather suggestive of ruminants gazing over a hedge.

A further disadvantage of the late position in the curriculum of Operative Surgery consists in the fact that what is last to be learnt is apt soonest to be forgotten. If the student had to keep in his head for years instead of for weeks the steps of the commoner major operations, he would be less likely than he is in after years to find that he has forgotten how to perform, say a particular amputation, face to face with the immediate necessity of performing it himself for the first time. A much more useful position in the curriculum for Systematic Operative Surgery would be about the middle, say immediately after Anatomy had been passed, before its details had begun to be forgotten, and while the student still had the prospect of being able to ripen his

knowledge of Operative Surgery, so far as that can be done by merely looking on at the work of others, during the remaining years of his course. At present he has no such knowledge to ripen.

In this connection the continued want of an Edinburgh text-book of Operative Surgery, which is partly responsible for this lack of knowledge on the part of students, may be alluded to. Kocher's work is too large for students, and the London text-books show just sufficient divergence from Edinburgh methods to dishearten the student who takes the very commendable step of carrying a text-book about with him to the different theatres. The present writer is glad to be able to take back with him to India an Edinburgh text-book of General Surgery. He would have found it a great help to him in the past to have had an Edinburgh text-book of Operative Surgery instead of having always to turn to London books for reference.

Is it, by the way, going too far in the way of teaching other people their own business to suggest in this place that one would like oftener to see an operator give a slight sketch of the operation and its probable details to the students *before* the operation begins, so as to heighten their appreciation of what is done? He might oftener, for example, say, "Gentlemen, you will know from your systematic studies that the steps of this operation in its classical form are so-and-so. In this case, for such-and-such reasons, you will notice that I shall probably do so-and-so instead of so-and-so. And you will notice that, contrary to what you would expect, such a step is far more tedious and difficult than such another step."

One subject that of necessity always crops up in speaking of University reform, is that of the far too lengthened security of tenure of Chairs. One quite expects to find that the *average* age of medical Professors is higher than that of Government servants, but one is hardly prepared to find it approximately that of Government servants when they have just been obliged by reason of age to retire from active duty.

The present, it so happens, is a peculiarly suitable time for revising the regulations regarding the tenure of medical Chairs, as in the not very distant future a number of Chairs must necessarily fall vacant, and changes could now be made without prejudice to present occupants, which would come into operation with the new holders. When these have been appointed, the task of reform will be much more difficult and much more invidious.

In truth, there is much need of reform. University authorities sometimes spare a pitying smile for us "Service men" in the fetters in which red tape is supposed to bind us. What has

Red Tape to say to the University? "I keep no man on full pay now because he was a distinguished man a number of years ago. I set no one in a Chair from which I am not to be allowed to ask him to rise. *Ad vitam aut culpam* may be a good enough motto for an old University, for if it is unbusinesslike in its methods there are younger Schools that can do the work instead, but *ad vitam aut culpam* would not do for the public Services. My methods have their faults, but in the course of my long connection with the British Services I have learnt to know human nature too well to expose my servants to the temptations of too secure positions."

ON THE TEACHING OF CLINICAL SURGERY IN THE EDINBURGH MEDICAL SCHOOL

By J. M. COTTERILL, F.R.C.S.,
Lecturer on Clinical Surgery in the Edinburgh Medical School

THERE has, naturally enough, been some excitement of late in the Edinburgh Medical School in consequence of the recent adverse criticisms of the visiting inspector (Mr Bryant of London) on the methods of examination in clinical surgery in the final examinations in the University of Edinburgh.

As to the intrinsic value of these criticisms, and of the recommendations made for the improvement of the examination, it is not necessary to say much. The examinations of to-day are practically identical with those of ten years ago, when I had the honour of being one of the examiners; and they were then declared, by the same inspector, to be excellent.

The "examination committee" of the General Medical Council dealt rather severely with the inspector's report; and the fact that the Medical Council itself, whilst deciding after some discussion to accept it, have ordered another inspection and report to be made next year, indicates sufficiently clearly the opinion they hold of the document in question.

In spite of any apparently contrary expression of feeling, we believe there will be an almost unanimous opinion in the minds of those most intimately associated with the University of Edinburgh, that she is amply strong enough, not only not to disapprove of, but even to welcome, and to profit by criticism, when it is fair and capable of proof.

But complaints have been justly made that the criticisms in this late report were vague and unsupported by the quotation of

particular cases. One complaint, for example, made against the examination, was that certain of the students examined showed deficient knowledge in certain particulars. The report did not, however, state whether these same students were passed or rejected. It appears now, however, that they were in reality rejected, and that the proportion of rejections in clinical surgery was particularly high!

So far, then, it follows that the methods of examination, far from being inefficient, were stringent and effectual, and that if anybody was at fault it was not the examiner, but the examinee. Now, however adverse we may be to appear to wash our dirty linen in public, it must be confessed that to many of us, who have for some years past been engaged in teaching clinical surgery in the Edinburgh School, this conclusion as to the insufficient surgical training of the student (which, as Sir Victor Horsley properly pointed out, is the only logical deduction from the report), comes as no surprise, but rather as the inevitable result of the absurd conditions under which the teachers of clinical surgery in this School have laboured for some time past.

It perhaps will hardly be believed that in consequence of the present arrangement of the curriculum, we are called upon to attempt to teach students clinical surgery at the beginning of their *second* year, when as yet they know very little indeed of anatomy, and nothing at all of physiology, pathology, or general surgery. Clinical surgery is, of course, the application *ad hominem* of these very sciences: the second year student consequently does not know the very alphabet of the language in which we are addressing him. It would be equally satisfactory to attempt to teach a man the differential calculus who had not yet learnt the multiplication table. Our Edinburgh graduates have justly the reputation of being very well educated in medicine: one wonders how much satisfaction or success the physicians would derive from teaching clinical medicine to second year men, who knew nothing of the topography or function of, say, the abdominal or thoracic viscera. That, however, is the position we surgeons are placed in.

There are several other causes, however, which militate most seriously against the proper surgical training of the Edinburgh student. One of the chief of these is the absurdly disproportionate time and energy which the student is compelled to devote to some of the earlier scientific classes.

In physiology, for example, the number of classes which the student now finds it necessary to attend—that is to say, if he is to have any chance of passing his examination—is five, viz., two winter sessions of six months each, and three practical classes. Contrast this with what was the case in my student days, viz.,

one six months' course and one practical class: the fees for physiology being now about double what they used then to be.

In defence of this state of matters, we are told that the subject of physiology has enormously developed. This is undeniable; but it is equally undeniable that surgery has developed to at least as great an extent; and yet in this latter essential part of a man's practical training for the medical profession, the classes (and fees) remain exactly what they were thirty years ago.

The result of this ill-proportioned elaboration of physiology is that the student has neither sufficient time nor energy left in his second year for studying such subjects as clinical surgery; at this time he has the fear of his dreaded "second professional" hanging over him, while the "final" in surgery being still some years off, he thinks he can afford to relegate his surgical training to a more convenient season; as the examination in physiology precedes that in clinical surgery, it is easy to see in whose hands the trumps lie.

As to the teaching capacity of the surgical staff in the Edinburgh Royal Infirmary, that is of course a matter of opinion, and one on which it would be unbecoming for me to speak—it may be safely left to those who know what they are talking about—but I do not hesitate to say that in the Edinburgh School surgeons loyally devote the best of their time and energy to their teaching work; and if the results are not what they should be, the conditions under which the work is done make first-rate results most difficult of attainment.

We are all delighted to hear that some efforts are at last being made by the University authorities to remedy some of the evils that have been alluded to: we feel very strongly that, if our Medical School is to hold its own in these days of fierce competition, it behoves our Alma Mater to make some very drastic and immediate changes in the present ill-arranged curriculum.

Whatever these changes may be, they should at any rate ensure that the student should not be sent to learn his clinical surgery until he has sufficient preliminary knowledge to enable him to understand the terms which his teacher is using, and sufficient time to attend to his hospital work.

Letter to the Editor

EDINBURGH, 19*th December* 1904.

DEAR SIR,—In the Editorial Note upon the subject of the "Age Limit in the Royal Infirmary" in the December number of this Journal a strong opinion was expressed against retaining in future a Chair of Clinical Surgery in the University of Edinburgh.

This Chair is said to have now "outgrown its usefulness," and I gather that the view represented is:—

1. That the teaching of Surgery in Edinburgh would be improved if the Lecturers on Systematic Surgery were also the teachers of Clinical Surgery, for it is considered inadvisable to limit a teacher to one or other branch of work.

2. That all the Infirmary Surgeons (whether Lecturers on Systematic Surgery or not) should be *ex-officio* University Lecturers on Clinical Surgery.

3. That the so-called "Lecturers on Clinical Surgery" need not give clinical lectures at all, since "each Lecturer should be allowed to conduct his classes as he thought best."

Each of these three propositions seems to me to contain one or more questions about which there is room for difference of opinion, and as the whole subject of the teaching of Surgery in Edinburgh is very much in evidence at present, I trust you will allow me to state the case on the other side. In doing so, I shall try to limit myself to these three propositions.

1. This proposition seems to me to turn on the question as to whether the teaching of Clinical Surgery is of sufficient importance to justify a man's giving his whole time and energy to it. The authorities in the University of Edinburgh, in University and King's Colleges London, and in many Universities on the Continent and in America have thought so in the past. In some of these Universities the Clinical Surgery professorships have even been sub-divided. In none of them, so far as I know, have these posts ever been abolished as obsolete institutions after they had once been established.

The trend in recent years has been to elevate practical teaching at the expense of systematic lectures, rather than the other way about.

It is admitted, however, that "general principles" are the proper sphere of systematic lectures, and "instances," on which

alone principles can be founded, are the proper sphere of clinical lectures. Can it be said that concentration of attention and energy on a man's special sphere of work does not make for advance there? My conviction is that two surgeons, one devoted primarily to Systematic Surgery, and the other to Clinical Surgery, will do far more for a given number of students of surgery than one man trying to do both.

Possibly as an alternative some may contemplate the introduction into the surgical side of the hospital of the system of conjoint lecturing which prevails on the medical side. Let us consider what the results would be. The classes would, on the extra-mural side at least, be tripled in size, while two-thirds of the students at each lecture would lose all knowledge of the patients after the lecture was over. The system has grave defects on the medical side of the hospital, but the defects would be much greater on the surgical side.

2. If all the Infirmary surgeons were *ex-officio* University lecturers on Clinical Surgery, there could be no purely extra-mural lecturers on that subject. But there is no reason why extra-mural lecturers on other subjects should not also be made University lecturers. This, however, if carried out, would do away with the independence of the extra-mural School, and destroy what is generally considered one of the most valuable and individual features of the Medical School in Edinburgh.

3. Of the various ways in which Clinical Surgery may be taught, I confess myself a strong believer in the value of clinical lectures as one way, along with others. Ward visits to note progress of cases, cliniques to study methods of investigation, operations to see how the manual work is done, are all indispensable to the student; but in the clinical lecture an opportunity is given for contrasting similar cases, for receiving an explanation of the cases, for understanding the reasons for procedures adopted: none of which, in my opinion, are equally well afforded by other methods of instruction. For these reasons, therefore, I cannot accept the statement that the "Chair of Clinical Surgery has outgrown its usefulness." To abolish the post would, I believe, be a retrograde step and a misfortune for the University and Medical School in Edinburgh.—Yours truly,

CHARLES W. CATHCART.

Editorial Notes and News[1]

Medical Reform.

THE Editors have given their very serious consideration to the advisability of discussing the subject of Medical Education in Edinburgh in the pages of the Journal. They are of course aware that some deprecate discussion as giving occasion to the enemy to blaspheme. But they have decided to allow it because they are convinced that the Edinburgh School of Medicine is not perfect, and that conviction of possible error is the first step to reform. The Edinburgh School is the greatest British School; it has advantages greater than any other; and if these advantages were fully utilised, it would not be long before the Edinburgh School once more occupied the position of *facile princeps* which it did five and twenty years ago.

The present Age-limit Crisis presents an unique opportunity for re-consideration of the whole subject of Medical Education, and it behoves everyone who has the real interests of the Edinburgh School of Medicine at heart to consider the position seriously. The Editors will be glad to receive communications from all interested. Signed communications will be inserted almost invariably; anonymous communications will necessarily be subject to Editorial supervision.

IF it be the case that preachers have sermons floating loose in their brains waiting for a suitable text to hang them to we can sympathise with them, for such was our condition on the 12th of December. The announcement on the 13th of Sir Donald Currie's magnificent gift to the University supplied the text for which we had been blindly groping.

Sir Donald clearly indicates that he wishes his gift to increase the teaching staff of the University. There is probably no University, there is certainly no Medical Faculty in the world where the disproportion between Professors and students is so great as in Edinburgh. The M'Gill University of Montreal has twenty Professors and twenty Lecturers in the Medical Faculty and nothing like the number of students in Edinburgh, while the younger University of Toronto has no fewer than forty-nine Medical Professors and Associate Professors. In neither of these cases are the numerous demonstrators and assistant demonstrators reckoned.

How does the University of Edinburgh compare with

[1] This department of the Journal is under the control of the Senior Editor.

this. The number of Professors in the Medical Faculty is precisely the same as it was fifty years ago: viz., thirteen. There are some fifteen or sixteen Lecturers, many of whom are simply the Professors' assistants under another name. There is, indeed, no getting away from the fact that had it not been for the extra-mural school the students could not have been properly taught.

Now just as each country develops the system of government most suitable to it, so it may be said that the present system is the best for Edinburgh, and we would not like to see sacrilegious hands laid on what has done so much for the Medical School of Edinburgh. Competition in teaching is one of the best things in the School, and our desire is to see the principle extended further. For the competition is not so free as it looks. The Professor sets the pace. All who compete with him must lecture on the same subject, in the same way, in the same number of lectures, at the same period of the year, and, most ridiculous of all, though we admit it is an unwritten law, at the same hour.

Take the subject of Operative Surgery, to which attention has recently been somewhat prominently drawn. From the middle of April to the beginning of June the student has a choice of no fewer than six different teachers. During the rest of the year no class is held, and however greedy of instruction the student may be, his desire cannot be gratified.

Clinical Teaching.

IN last month's *Journal* we suggested that the Chair of Clinical Surgery should be abolished and all the Hospital Surgeons recognised as University Lecturers in Clinical Surgery. We are glad to learn that this is recognised as within the scope of practical politics and that serious consideration is being given to the proposal. It is essentially the system which obtains in Aberdeen, and there we have every reason to believe it works successfully. It is, we understand, objected that this would practically hand over the appointment of the University Lecturers (we would like to see them Associate, or Extra-Ordinary Professors) to the Infirmary Managers. To that it may be replied, first, that it is already the practice in the case of several lectureships; second, that it is surely the interest of both to get the best men; and lastly, has not the University a considerable influence on Infirmary appointments?

We are emboldened to suggest the extension of the same principle to the Medical side of the Infirmary. There are really no University Professors of Clinical Medicine. The Managers

of the Royal Infirmary appoint certain of the Professors, during *their* (the Managers') pleasure, to charge of wards. It is extremely unlikely that the next Professor of Pathology will be a practising physician, and so the number of clinical teachers (intra-mural) will be reduced to two, a number totally inadequate for the purpose of teaching Clinical Medicine to about 300 students. But let the ordinary physicians be made University Lecturers and an adequate staff is at once provided.

But it will be asked, where does the University benefit by the proposal. Our first answer is that it would benefit in having its students more efficiently taught by Lecturers under its more direct supervision, and that intra-mural competition would act as a most valuable stimulus. We are, however, aware that some in high position in the University like to see benefits expressed in something practical. To these we suggest the application of the principle already adopted with the more recently appointed Lecturers. Let the University extract a percentage of the students' fees as a *quid pro quo* of recognition. It need not be large, for has not Sir Donald Currie distinctly intimated that it is for the establishment of Lecturers that he wishes his money to be expended. but it should be large enough to safeguard the University from any loss; and we are sure that the Lecturers will show enough *esprit de corps* not to cavil over a matter of vital importance to the welfare of the School.

Medical Defence.

THE Second Annual Report of the Medical and Dental Defence Union of Scotland, recently issued, is a record of increasing success, and a testimony to the need that evidently existed. The English Union has done good service to many in this country, but without being ardent Home Rulers we can nevertheless easily understand that one nearer home appeals to most as being the more likely to be useful. The fact that the Union now has 615 members is proof of its having filled a gap. We commented last year on the predominance of the occidental element on the Central Council, and we notice in the report that during the year two additional members were admitted, one from Dundee and the other from Aberdeen, and that it is proposed to add one for Edinburgh and one for Inverness, which hamlets will then have equal representation with Coatbridge, and half that of Kilmarnock. A number of examples of the Union's work during the year is given, showing the variety of cases brought before it. The most satisfactory entries are those, of which there are several, viz.: "Union defended; case collapsed." One entry notes that a

member was asked to give the *Kirk Session* information as to the condition of a patient. The member courageously refused, and the Union wisely approved of his action. The Union is well worth the 10s. a year which it costs, and we trust it will continue to grow at the same healthy rate.

A Sanatorium at Davos.

MANY of our readers will have read a circular asking for subscriptions for the purpose of building a sanatorium for the treatment of pulmonary diseases in Davos, at a cost of £30,000. The proposal differs from the ordinary in that all that is asked from the charitable is the £30,000; the institution is to be self-supporting. There is no doubt that there is no class which so feels the strain of a case of phthisis as the lower middle classes, and if it could be shown that such cases could only benefit at Davos, we would have nothing but commendation for the scheme. But is that the case? We have made some enquiry from those competent to express an opinion, and that opinion seems to be that while Davos is an excellent place for chronic cases to winter pleasantly in, those who have their living to earn get at least as much benefit from treatment in a sanatorium in the country where they have afterwards to make their bread and butter; and that for the *cure* of early cases, as much can be done at home as at Davos.

If we had a sufficiency of homes in this country where the many who could afford two guineas a week could be accommodated, we might be disposed to do something for those who can afford a journey to Switzerland and the expenses there, but charity has still much to do at home.

Diphtheria Antitoxin.

AT the recent meeting of the British Medical Association at Oxford, Dr E. W. Goodall contributed an excellent summary of the present state of medical opinion regarding serum therapeutics. The whole paper deserves careful perusal, but it may be worth while to draw special attention to one or two points regarding the serum treatment of diphtheria, as this is particularly interesting to the general practitioner.

The first point to be referred to is the relation of antitoxin to diphtheritic paralysis, and it will be best simply to quote Dr Goodall's own words.

"The facts with respect to the behaviour of the paralysis that follows diphtheria are," he said, "to my mind, very strong—

if not the strongest—evidence on behalf of the reality of the influence of antitoxin. Paralysis is a sequel of the more severe forms of diphtheria; consequently, if you prevent a mild case of diphtheria from becoming severe, you will prevent the occurrence of paralysis. Now, since the introduction of the antitoxin treatment the paralysis-rate has gone up. This appears to be a contradiction to what I have just stated. But let us consider the matter a little more closely. In the pre-antitoxin days it did not matter, with respect to the occurrence of paralysis, whether the patient was admitted to hospital on the first, second, or any other day of the attack; he was just as likely, if he survived, to get paralysis if he were admitted early as if he were admitted late. But with the antitoxin treatment it is a very different matter. The earlier the patient is brought under treatment, the much less likely is he to develop paralysis. Thus, in 2000 cases of diphtheria analysed by my friend and former colleague, Dr Woollacott, the incidence of paralysis increased from 4.7 per cent. in those cases brought under treatment on the first day of the disease, to 24.4 in those treated for the first time on the fifth day or later. The increase has been found to be entirely amongst the cases brought under treatment at a late stage. In preantitoxin days many of these cases would have proved fatal before there had been time for paralytic symptoms to have shown themselves. But nowadays more of them recover, or, at any rate, live for a longer time, so that there is greater opportunity for paralysis to supervene. Again, formerly there was no relation between the severity of the paralysis and the period of the disease at which treatment was commenced. A first-day case might go from bad to worse, and even if you tided it through the acute stage of the malady, two or three weeks later extensive palsy might set in and prove fatal. But now we can say with certainty that if the patient is only brought under treatment sufficiently early, not only will the chance of his getting paralysis be slight, but if he does, it will be only to a very limited and harmless extent. It is only in the cases that are brought under treatment late that severe and fatal paralysis is seen. For details of this question I must refer you to Dr Woollacott's papers in the Asylums Board's report for 1898 and the *Lancet* for August 26th, 1899.

"These facts and figures are very remarkable, and from them only one conclusion can be drawn, namely, that as applied to diphtheria, the serum treatment has been extremely successful. And this success has not been confined to one particular group of hospitals in one particular city. Statistics from every region of the globe where diphtheria has been prevalent show the same result, namely, a marked lowering of the case

mortality. In 1899, Bayeux collected the published statistics from all parts of the world, comprising upwards of 200,000 cases, and the case mortality was 16.2 per cent. I would remind you, also, that within two or three years of the time when this treatment came into general use, in more than one country a special committee of medical men was appointed to investigate its claims, and, as far as I am aware, in no single instance was even a neutral report made, still less an unfavourable one. I will leave it to others to enter into further details as regards diphtheria, and will simply state that the immense value of the serum treatment appears in the case of that disease to be amply proved."

A second point of interest referred to was the gratuitous supply of antitoxin by health authorities for the treatment of the poor. It is admitted that the chief value of antitoxin is lost if its administration is delayed, and delay must necessarily occur if patients do not receive treatment until the practitioner who first sees them feels sure of his diagnosis and has them removed to hospital. In 1895 the Health Department of Chicago undertook to supply antitoxin gratuitously to the poor, and the result was an immediate fall of the case-mortality from 35 per cent. to 6 or 7 per cent., where it has remained ever since. The course adopted in Chicago might well be imitated nearer home.

A third point of interest in Dr Goodall's paper is the method of administration. The usual method is by subcutaneous injection with strict aseptic precautions. For ordinary purposes this method is doubtless the best, but it appears that experimentally the most efficacious method is by intravenous injection. This latter mode of treatment would therefore seem to be indicated in very severe cases seen rather late in the course of the disease. A subsequent speaker, Dr C. J. Martin, quoted Cairns as having made use of intravenous injection of large doses (20,000 to 35,000 units) in twenty severe cases, some of them with pulmonary complications. "The almost immediate improvement after intravenous injection of serum in such cases (pulmonary) is as striking in its results as it is difficult of explanation."

Royal College of Physicians, Edinburgh.

AT a meeting of the College held on Thursday, 1st December, Dr John Playfair was elected President of the College; Dr Thomas S. Clouston, Vice-President; and Sir Thomas R. Fraser, Sir John Batty Tuke, Dr Charles E. Underhill, Dr James Ritchie, and Dr R. W. Philip were elected to the Council with the President and Vice-President. The Council subsequently made the following appointments for the ensuing year:—Peter A. Young, M.D.,

Treasurer; Harry Rainy, M.D., *Secretary*; D. Berry Hart, M.D., *Librarian*; Sir John Batty Tuke, M.D., *Curator of Research Laboratory.*

I. Examiners for the Licence.

First Board.—Dawson Turner, M.D., and Alfred Daniell, D.Sc., *Physics.* W. G. Aitchison Robertson, M.D., and John Gibson, Ph.D., *Chemistry.* John Macmillan, M.B., and J. Beard, D.Sc., *Biology.*

Second Board.—Sir James A. Russell, M.B., and Joseph R. Whitaker, M.B., *Anatomy.* D. Noël Paton, M.D., and J. Craufurd Dunlop, M.D., *Physiology.*

Third Board.—Robert A. Fleming, M.D.; Francis D. Boyd, C.M.G., M.D.; and Stuart M'Donald, M.D., *Pathology.* J. Murdoch Brown, M.D.; G. Lovell Gulland, M.D.; and Alex. Lockhart Gillespie, M.D., *Materia Medica.*

Final Board.—Andrew Smart, M.D.; Claud Muirhead, M.D.; James O. Affleck, M.D.; Chas. E. Underhill, M.B.; W. Allan Jamieson, M.D.; Alex. James, M.D.; Byrom Bramwell, M.D.; G. A. Gibson, M.D.; J. J. Graham Brown, M.D.; Alexander Bruce, M.D.; Wm. Russell, M.D.; and R. W. Philip, M.D., *Medicine.* Sir J. Halliday Croom, M.D.; D. Berry Hart, M.D.; A. H. F. Barbour, M.D.; F. W. N. Haultain, M.D.; J. W. Ballantyne, M.D.; and J. Haig Ferguson, M.D., *Midwifery.* James Andrew, M.D.; P. A. Young, M.D.; James Carmichael, M.D.; J. Allan Gray, M.D.; R. S. Aitchison, M.D.; and C. J. Lewis, M.D., *Medical Jurisprudence and Public Health.* Sir John Batty Tuke, M.D.; T. S. Clouston, M.D.; Sir John Sibbald, M.D.; John Macpherson, M.D.; and John Fraser, M.B., *Insanity.*

II. Examiners for the Membership.

A. R. Simpson, M.D.; Andrew Smart, M.D.; Claud Muirhead, M.D.; Andrew Davidson, M.D.; Sir Thos. R. Fraser, M.D.; John Wyllie, M.D.; James Andrew, M.D.; Sir John Batty Tuke, M.D.; T. S. Clouston, M.D.; J. J. Kirk Duncanson, M.D.; P. A. Young, M.D.; James O. Affleck, M.D.; John Playfair, M.D.; Sir John Sibbald, M.D.; Chas. E. Underhill, M.B.; W. Allan Jamieson, M.D.; Alex. James, M.D.; Peter M'Bride, M.D.; Byrom Bramwell, M.D.; G. A. Gibson, M.D.; Sir J. Halliday Croom, M.D.; D. Berry Hart, M.D.; Sir James A. Russell, M.B.; W. S. Greenfield, M.D.; J. J. Graham Brown, M.D.; A. H. F. Balfour, M.D.; Alex. Bruce, M.D.; James Ritchie, M.D.; William Russell, M.D.; G. H. Melville Dunlop, M.D.; N. T. Brewis, M.B.; R. W. Philip, M.D.; John Thom-

son, M.D.; J. Haig Ferguson, M.D.; G. Lovell Gulland, M.D.; W. G. Aitchison Robertson, M.D.; Norman Walker, M.D.; William Elder, M.D.; Charles Jas. Lewis, M.D.; Jas. Lamond Lackie, M.D.; Harry Rainy, M.D.; K. Mackenzie Downie, M.D.; Claude Buchanan Ker, M.D.

III. EXAMINERS FOR DIPLOMA IN PUBLIC HEALTH.

FIRST EXAMINATION.—W. G. Aitchison Robertson, M.D., *Practical Work in Laboratory.* Alex. Crum Brown, M.D., *Chemistry.* Dawson Turner, M.D., *Physics.* Sir Arthur Mitchell, K.C.B., *Meteorology.*

SECOND EXAMINATION.—Claud Muirhead, M.D., *Epidemiology and Endemiology.* J. Allan Gray, M.D., *Practical Sanitation.* Sir James A. Russell, M.B., and Jas. Craufurd Dunlop, M.D., *Sanitary Law, Vital Statistics, and Statistical Methods.*

Harry Rainy, M.D., *Registrar*; D. Noël Paton, M.D., *Superintendent of Laboratory*; Alex. Sholto Douglas, W.S., *Clerk*; John Wilson Brodie, C.A., *Auditor*; F. C. Nicholson, M.A., *Sub-Librarian.*

Royal College of Surgeons of Edinburgh.

AT a meeting of the College held on 15th inst., the following gentlemen, having passed the requisite examinations, were admitted Ordinary Fellows:—William Hope Fowler, M.B., Ch.B., Edinburgh; David Fyfe, L.R.C.S.E., Glasgow; Sidney Alfred Gibbs, M.B., C.M., Nelson, New Zealand; John Stroud Hosford, M.R.C.S.Eng., L.R.C.P.Lond., London, S.W.; Trevor Howell, M.R.C.S.Eng., L.R.C.P.Lond., Walsall; William Irwin, M.B., C.M., Singleton, N.S.W.; John Alexander Campbell Kynoch, M.B., C.M., Dundee; Roderick Murdoch Matheson, M.D., Edinburgh; and Walter Silverwood Richardson, M.R.C.S.Eng., L.R.C.P.Lond., Boscombe, Hants.

Appointments.

DR DITTMAR, at present M.O.H. for Scarborough, has been appointed to the office of Medical Inspector of the Local Government Board for Scotland, vacant by the promotion of Dr Leslie Mackenzie.

Dr J. Malcolm Farquharson was recently elected, by the Managers of the Royal Infirmary, second assistant-surgeon to the Ear and Throat Department.

Recent Literature

CRITICAL SUMMARIES AND ABSTRACTS

MEDICINE

By G. LOVELL GULLAND, M.A., B.Sc., M.D., F.R.C.P.,
Assistant-Physician to the Royal Infirmary, Physician to the Royal Victoria Hospital for Consumption, &c., Edinburgh

THE TREATMENT OF WHOOPING-COUGH

So many drugs have in their time and turn been praised for the relief of whooping-cough, been used with enthusiasm, become discredited and been forgotten, that one reads with due scepticism the account of new remedies. But Stepp (*Therap. Monatsh.*, Nov. 1904) has so far improved on his predecessors in that he has given us an opportunity by the use of graphic curves, of seeing whether his statements are entitled to credence. The curves indicate the number of "whoops" on each day from the time when the treatment was commenced, to that when the convulsive character of the cough disappeared. Each attack was noted by the mother of the child as it occurred, and Stepp visited each case every day so as to make sure of the patient's state.

The drug used was fluoroform. This was given dissolved in water in 2 to 2½ per cent. solution—it will not dissolve to any greater extent—and is tasteless, odourless, and absolutely harmless. The dose given was a teaspoonful to a dessertspoonful of the solution every hour, even for babies of a few weeks old, for older children up to a tablespoonful. The remedy is expensive, and the amount necessary for a course of three or four weeks would cost from twenty to thirty shillings. Stepp remarks that this is a difficulty, as he finds parents trying to use a smaller dose than is necessary, and so risking the success and rapidity of the cure!

He says little or nothing about the mode of action of the drug, but points out that fluorine belongs to the same group as chlorine, bromine, and iodine, all of which are extensively used in medicine, and that fluorine is by far the most powerful element of the group.

He has treated twenty-two cases; all recovered. Eleven of the children were less than a year old, five of one year, five of two years, and one of four years. In a disease like whooping-cough, which is affected by so many factors in the child's condition, previous history, and surroundings, it would serve little purpose to talk

of averages, but his curves and the short histories of the cases appended to them certainly give one the impression that the course of the disease was materially shortened, and the effect of the medicament in diminishing the number of attacks seems to have been most striking in many of the cases. Thus in a child of a year old the daily number of attacks fell in three days from thirty-three to fifteen, in a child of four weeks old it fell in a week from fifty-five to nineteen, in another of a year from twenty-seven to three in a week, and so on, and along with this the violence of the cough diminished also. Stepp formulates the rule that in every case, both in the slighter cases and in the severe and complicated ones, the curve falls almost at once, rapidly at first, then more slowly, then again more rapidly. This occurs with a regularity which makes a specific action of the drug highly probable. The occasional temporary rises which appear in some of the curves were always to be accounted for by some such disturbance as bronchial or gastric catarrh. Some of the cases deserve to be quoted more fully. Two children, Hagen, six months old, and Ammon, eight months old, lived in the same house, and were taken ill at the same time. Hagen's parents were willing to spend the necessary money on the treatment; Ammon's parents were not, and preferred to wait and see what happened. The child Hagen, though it was weakly and rickety, recovered completely in three weeks under fluoroform. Nearly two months later the father of the child Ammon came to Stepp and stated that he was now willing to spend the money. The child was extremely ill, cyanotic and puffy, and had severe bronchial catarrh. The dose of a teaspoonful every hour had no effect on the number of the attacks (50) in the first two days; the temperature rose suddenly, though there was no evidence of pneumonia. Then a tablespoonful was given every hour. The number of the attacks fell at once from 51 to 40, rose to 45 next day, and then fell sharply in three days to 11, while the temperature fell to normal. The amount of fluoroform was diminished and the number rose again to 22. When the remedy was again increased, although the temperature had risen and there was now a definite pneumonia, the attacks practically ceased, and did not again recur. So that whilst the child Hagen recovered completely in three weeks with fluoroform, the child Ammon retained its cough with undiminished severity for two months, and was then quickly cured by large doses of fluoroform in fourteen days, in spite of the complicating bronchitis and pneumonia.

Two other children, Springer by name, presented curves which show in a very interesting way the effect of leaving off the medicine. They were the children of very poor parents,

and the mother had little time to look after them. The younger, Minna, was a healthy child of fourteen weeks, and the mother seems to have been content with the initial fall in the number of attacks from 20 to 10 in the day. The medicine was given in small doses—or not at all—and the number of attacks again rose to 15 or 16. This induced the mother to give the medicine more regularly and the child got better. The other child, a boy of a year and a half, was very seriously ill. The daily number of attacks, about 15, was not very high, but the child had pneumonia, first of the right lung, later of the left, was septic, cyanosed, and greatly prostrated. The attacks were very severe, and the prognosis was obviously very unfavourable, but with large doses of the medicament and cold sponging every hour he recovered in a comparatively short time.

Stepp may perhaps be unduly sanguine with regard to his new remedy, but it is something to have had 22 consecutive cases, practically all in infants, and many of them severe cases in weakly babies, without a death; and it is pretty evident from his report that the disease ran a milder course after the treatment was begun than one is accustomed to see, while none of them had the whoop recurring or continuing for weeks after the attack was supposed to be over, as one has seen happen. The drug certainly seems to deserve a more extended trial, and if it retains its reputation of harmlessness it will easily displace its cousin bromoform. I can recall cases enough where no drug seemed to have any effect on the frequency and severity of the attacks, and can wish that one had had this remedy to try with them.

SURGERY

By H. N. FLETCHER, M.B., Ch.B.,
House Surgeon, Royal Hospital for Sick Children, Edinburgh

APPENDICITIS

THE opinion of so eminent a surgeon as J. B. Murphy, of Chicago, on the subject of appendicitis in its various aspects, should prove of great interest to the profession, and his deductions from an experience of 2000 cases in which he has operated, of exceptional value. The object of the present writer is to epitomise the chief points of his article, published in the *American Journal of Medical Sciences*, August 1904.

Surgical Anatomy.—In discussing the more common situations of the appendix in its inflammatory conditions, the author

emphasises the importance of both rectal and vaginal examination in all suspected cases. He found the appendix in the pelvis in 5 per cent. of his cases, in a large proportion of which there was an accompanying abscess entirely confined to the pelvis. He found it, also, many times in the right inguinal hernial sac in both acute and intermediate cases, and warns the medical man always to suspect acute appendicitis in right-sided hernias in which there is rapid elevation of temperature, with nausea and vomiting, shortly after the signs of strangulation appear. Simple strangulation never gives a primary rise of temperature.

Etiology.—Murphy considers "chill" the most common cause of onset. Fruit stones, pips, etc., were only present in 2 per cent. of his cases. Fæcal concretions were found in 38 per cent.; the irritation of the mucosa caused by these favouring, no doubt, the entrance of organisms into the tissues under propitious circumstances. The presence of the following organisms, as found in cultures, with their relative frequency, is as follows: (1) bacillus coli communis, (2) staphylococcus aureus and albus, (3) streptococcus, (4) pneumococcus, (5) bacillus tuberculosus, (6) actinomyces.

Symptomatology.—Murphy lays the greatest stress upon the order in which symptoms occur, viz.: (1) Pain in the abdomen, sudden and severe, followed by (2) Nausea and vomiting, most commonly three to four hours after onset of pain. (3) General abdominal sensitiveness, most marked on the right side. (4) Elevation of temperature, beginning from two to twenty-four hours after the onset of pain. "*A deviation from this order,*" he says, "*causes us seriously to question the diagnosis.* I have, I believe, avoided many errors in diagnosis by laying stress on this order. If nausea and vomiting or temperature precede the pain, I feel certain the case is not one of appendicitis. Where temperature alone precedes the pain for a day or more I always fear typhoid, with a typhoid ulcer in the appendix."

Pain was present in every single one of Murphy's 2000 cases as the initial symptom. It usually subsides gradually. A sudden subsidence, within the first thirty-six hours, signifies one of three things. (1) Escape of the pus through the neck of the appendix into the cæcum. (2) Rupture of the appendical wall; or (3) Complete gangrene of the appendix. Sudden cessation of pain, then, means a diminution or cessation of absorption, but *not* necessarily of *danger*, as is so commonly, though erroneously interpreted, often with fatal results. Secondary pain after the first thirty-six hours is not usually colicky, as at the onset, but of typical inflammatory type, and is due to peri-appendicular involvement. Severe pain after primary subsidence

is always a danger signal, telling, as it does, of commencing peritonitis from perforation.

The primary *nausea and vomiting* is reflex, from an over-distended appendix. The secondary vomiting is due to absorption from infection of the peritoneum, often persisting and increasing as absorption increases.

The abdominal tenderness is at first diffuse, often without much rigidity of the abdominal walls. As the appendix becomes fully distended, the muscles guard it with a marked rigidity. As the acute tension subsides, the general tenderness disappears, and sensitiveness is confined to the area of the appendix, wherever that may be: if not in the abdomen, the pelvis should be examined.

In writing of *temperature*, its cause and significance, Murphy states that it was not absent in a single acute infective case in its early stage, *i.e.* in the first thirty-six hours after the onset. It is caused by absorption of toxins from pus under pressure in an enclosed space. A sudden drop of temperature means a cessation of absorption, due most commonly to perforation of the appendix; next in frequency, to escape of its contents into cæcum; third, to gangrene of the wall; fourth, to circumscribing tissue infiltration with diminished absorption; and fifth, to diminution of virulence of the organisms in accordance with the law of putrefaction and fermentation.

The appendix may rupture into the meso-appendix, and here, after the first sudden fall, there is almost as sudden a rise; or it may burst into a space circumscribed by adhesions, and in this case there is a more gradual subsidence in the first thirty-six to fifty-two hours after the onset; or, again, it may, in cases of rapid gangrene, rupture before adhesions have time to form, and in this case the sudden drop occurs usually in the first twenty-four hours. A remission of temperature of one or two degrees with subsequent gradual rise, means infection of a new area.

Leucocytosis, the author considers of but little value, beyond the fact that a sudden and great increase of the leucocytes usually means an extensive peritonitis.

Pulse.—Nor does he consider the character of the pulse as of much help in differential diagnosis, but rather as an index of the degree of toxæmia and as a guide to prognosis.

Tumour.—He draws attention to the frequency with which the local spasmodic contraction of the rectus abdominis is mistaken for the appendix on palpation in the early hours of acute cases.

In discussing the *clinical course* of appendicitis, the author describes the pathological changes in the coats of the appendix

and the symptoms in the early hours, when probably the organ alone is involved; these symptoms have come before our notice already. After this, *i.e.* after the first fifty hours or so, if subsidence has not occurred, the extra-appendicular changes and the symptoms resulting therefrom supply the clinical picture. If a circumscribed abscess has formed, the pain, temperature and pulse-rate subside to some degree, and the temperature may even become normal, while local signs of abscess formation are usually present.

If there is a rupture of the appendix, or of a peri-appendicular abscess into the general peritoneal cavity, there is usually a drop in temperature (for pus pressure is relieved), with symptoms which vary with the kind of organism, but which usually have in common fresh and severe pain, secondary vomiting, and after a while tympanitis and collapse. At first, after perforation, there is no absorption of toxins, for a protecting exudate is thrown out, but soon this is thrown off, and with it the peritoneal endothelium, leaving a raw surface through which rapid absorption can take place, and it is not until this absorption takes place that collapse occurs. Collapse is, therefore, a late symptom, and not the first sign of perforation, as is so commonly supposed.

We may briefly describe the symptoms produced by the toxins of various organisms which may be the cause of general peritonitis.

In *staphylococcal* infection of milder type the peritoneum is covered by a diphtheritic-like exudate, which is thrown off usually between the evening of the fourth and the morning of the sixth day. Then rapid absorption takes place with frequent small discharges from the bowel, anxious expression, and shortly death. The peritoneal cavity may contain a large amount of sero-pus.

If of *streptococcal* type there is rapid blistering of the peritoneum after rupture, and, within a few hours, symptoms of intense intoxication, high pulse, anxious expression, talkative delirium, quick perceptions, and all the signs of severe and acute streptococcal infection. There is little or no free pus in peritoneal cavity.

If the *bacillus coli* is the cause, there is usually a mild rise of temperature, a considerable exudate of sero-pus, and a gradually increasing abrasion of surface endothelium. Adhesions tend to form and circumscribe the pus, which is copious, creamy, thick and fœtid. Rarely the bacillus coli produces a powerful and rapid destruction of endothelium, with gangrene of the peritoneum, a very fatal form. In the milder form, gas is sometimes present, the temperature is not usually high, there is great physical depression, low arterial tension, sunken eyes, somno-

lence, and finally, a low muttering delirium ; an entirely different picture from that due to a streptococcal infection.

In discussing the important question of *treatment*, Murphy divides the time for operative interference into four stages :—

1. Early, within the first 48 hours.

2. From the second to the fifth day, during the actively increasing inflammatory process.

3. From the fifth to the seventh day, in the subsiding inflammatory process.

4. In the intermediate stage—between attacks.

He takes stage 1 as the period of election, before perforation of the appendix or infection of the peri-appendicular tissue has had time to take place, for the special reason that the course of the disease subsequent to this stage cannot be predicted. In many cases it will go on to a virulent, if not fatal end. The danger is not more than that of an ordinary laparotomy. Convalescence is rapid, and of not more than two to three weeks' duration ; drainage is not necessary, and therefore hernia is less common ; and finally, no recurrence is possible. Murphy urges with all his heart operation at this stage, if possible.

Stage 2. In this stage there is often an acute inflammatory process going on, with a circumscribed abscess round the appendix, or early circumscribed or general peritonitis. The temperature and pulse-rate are often high ; there may be intestinal paralysis and severe intoxication. "Shall we operate?" asks Murphy. "Yes, and at this stage," is his answer ; the extent of the operation being governed by the constitutional symptoms of sepsis rather than by the extent and character of the pathological changes.

If the intoxication is severe, the operation must consist of simple opening and relieving pus tension ; there should be the least possible separation of adhesions and trauma of the infected tissues ; no sponging, no irrigation or other manipulation, for just the slightest extra amount of absorption might prove too much for the patient.

If, on the other hand, the intoxication is not severe, and whether the pus is circumscribed or not, the appendix, if accessible at all, should be removed, but still with as little disturbance of parts as possible. The anæsthesia should be as short as possible. In his operations at this stage Murphy has removed the appendix in ninety per cent., and has only had one death. In the other ten per cent. the condition was too severe to allow of more than opening and draining.

In the third stage, the retained pus is always an element of danger. It must be liberated and the appendix removed. Murphy opens through the anterior abdominal wall into the free

peritoneal cavity, and always to the inner side of the abscess, packing off the general cavity with gauze before opening the abscess. He never opens directly through the anterior incision into the abscess, for the appendix must be removed if possible, and the manipulations in opening the abscess directly and in removing the appendix might result in the rupture and escape of pus into the general peritoneal cavity without the surgeon's knowledge. Further, there might be other loculated collections of pus which would be discovered by Murphy's method, and which, in the other operation, would have escaped notice.

In the fourth stage, operation is advocated because of the danger of recurrence, and for reasons so well known and obvious as not to need mention. Murphy has done 1300 cases of this kind, and has only had one death, and that from a cause other than the operation.

Murphy's routine incision in operating is through the outer margin of the rectus abdominis, half an inch to the inner side of the linea semi-lunaris. He seldom goes through the oblique and transversalis muscles. The reasons for choosing his site of entrance to the abdominal cavity is, that the incision can be prolonged without cutting muscle fibres, that peritoneum and muscular aponeurosis can be sewn together without including muscle, and that few hernias appear afterwards. In acute infective cases, where the condition of the patient allows of it, the appendix, after careful packing of gauze round about, must be located and adhesions gently separated till a ligature can be put on the mesentery. If the infection is very acute and virulent, one ligature should be put on the mesentery and one on the base of the appendix, which is amputated short, with no effort to embed the stump. Murphy has never had a fæcal fistula requiring further operation in a single one of such cases.

In septic peritonitis, the appendix should always be removed, and a rubber drainage tube left in the pouch of Douglas or vesico-rectal pouch. Gauze drains must not be used longer than eight hours, for after that time they become plugs. Irrigation is never, under any circumstances, employed in Murphy's abdominal work.

After-treatment.—The majority need no special treatment. A certain percentage, however, that are already severely intoxicated need special care and wise treatment. In these cases the patient is sat up with back-rest at an angle of 35-45 degrees. This favours the settling of the peritoneal and wound exudates into the pelvis to the site of the drainage tube. Large quantities of saline solution are given *per rectum*; from four to twelve quarts in the twenty-four hours being allowed to seep in, the tube remaining constantly in position. This will dilute the

toxins, favour elimination, quiet thirst, lessen nausea, and increase peristalsis and expulsion of gases. Stimulants may be of service.

Murphy concludes his most instructive paper by a strong appeal to physicians and surgeons to advise operation in all cases of appendicitis, and, if possible, to operate or have their patients operated on during the first forty-eight hours.

OBSTETRICS

By ROBERT JARDINE, M.D.,

Professor of Midwifery, St Mungo's College, Glasgow; Senior Physician to the Glasgow Maternity Hospital, etc.

Recurrent Eclampsia.—In the *Journal of Obstetrics and Gynæcology of the British Empire*, for September 1904, A. J. Sturmer, Lieut.-Col. I.M.S., Superintendent, Government Maternity Hospital, Madras, gives notes of three attacks of eclampsia in an Eurasian woman. The patient's first labour had been normal, but two years later, when she was twenty-two years of age, she was admitted to the hospital, in the ninth month of pregnancy, in a semi-comatose state. Her urine was loaded with albumen. She had five fits, and was delivered by craniotomy, after dilatation of the cervix by means of Champetier de Ribes' bag. Her third and fourth confinements were normal. Five and a half years after her first attack she was again seized with fits, when about eight months pregnant. Her urine was loaded with albumen. She was treated with morphia, and had eight fits before delivery and six after. The child was still-born. When she was discharged, the urine was quite free from albumen. Her sixth confinement was natural. Three years after the second attack, she was admitted suffering from albuminuria, while pregnant for the seventh time. The urine was scanty and loaded with albumen. She was treated by a milk diet, and five grains of thyroid extract, three times daily, and the albumen quickly disappeared. She refused to stay in the hospital, but was brought back, twelve days later, after having had three fits. The urine was again scanty and loaded with albumen. She was seven months pregnant. Half a grain of morphia was given hypodermically, and ten grains of thyroid extract, and during the next twelve hours this was followed by other thirty-five grains, in divided doses, making in all, forty-five grains of thyroid extract. She was also given a saline injection of one pint under the breast, and a mixture of acetate and citrate of potash. She had thirteen fits before delivery, and none after. The child was

still-born. The day after delivery, the urine contained $\frac{1}{12}$ albumen. No tube-casts were found in the urine. She left the hospital, apparently quite well, nineteen days after delivery, without any indications of disease of the kidneys.

In 271 cases of eclampsia treated in this hospital, this was the only one in which there were recurrent attacks. The writer says, "Cases of recurrent eclampsia are not unknown in literature, but I imagine three attacks in the same individual are without record." In this he is mistaken. Lumpe has mentioned a case of three attacks, in the first, second, and fifth labours, and Leopold, one, in three consecutive pregnancies. In Dr Munro Kerr's analysis of eighty cases, treated in the Glasgow Maternity Hospital, published in the third volume of the Glasgow Hospital Reports, he records two cases. In one, a v-para, who died, there had been convulsions in her three previous pregnancies, and in the other, also a v-para, who recovered, there had been attacks in all her pregnancies.

Recurrent attacks are so rare that even some of the most recent text-books on obstetrics do not mention the possibility. Webster, however, refers to it, and states that in eighty-one cases, Leopold found that it recurred more than once in 2.5 per cent., and, in one case, in three successive pregnancies. Olshausen gives the recurrence in 1 per cent. of cases. I have seen two cases of recurrence, both of which have been published, one in *Clinical Obstetrics*, and the other in the *Glasgow Medical Journal* for October 1904. In both of my cases there was evidence of kidney disease, and I am inclined to think this is the case in many of such cases. Olshausen's estimate of 1 per cent. seems to be very near the mark.

Pemphigus Neonatorum. — In the *American Journal of Obstetrics* for October 1904, Dr Emma L. Call, of the New England Hospital for Women and Children, Boston, gives an interesting account of an epidemic of the above disease, which occurred in the hospital in the summer of 1903. She cites, from Kaposi, the following description of the disease: "An affection of the skin of the new-born infant, sudden in onset, acute in its course, and which may or may not be accompanied by fever. The eruption consists of blisters, varying in size from that of a pea to a bean, filled with clear fluid, which rapidly becomes purulent. Its distribution is irregular, the face, trunk and extremities being most often attacked. After two or three days the blisters dry, forming crusts, which soon fall off, leaving a red surface, which later may be pigmented."

The first case was noticed on June 22nd, as a small blister

on the leg of an infant two days old. In this hospital the children are kept in a nursery by themselves and only taken to their mothers at feeding-times. The child affected was kept in the nursery, but separated from the others, and the nurse attending it was cautioned to disinfect her hands after touching it. Two days later two more babies were affected. The three children were then isolated in a room by themselves, under charge of a special nurse, who had nothing to do with the other children. By June 3rd, five more cases had developed, and were isolated. Of these eight cases, four were in the house at the commencement of the attack, and the other four were born after the first set had been isolated. In addition to isolating the infected babies the healthy ones were temporarily removed from the nursery, and it was thoroughly cleaned and fumigated.

On July 11th, however, a fresh case appeared, rapidly followed by two more, and on July 17th the infected children and their mothers were isolated under special nurses who never entered the maternity wards. The nursery and wards were again cleaned and fumigated, and the nurses and other attendants were disinfected. On July 29th a new case appeared. This might, of course, have been infected before the 17th, but on July 22nd and 26th two more cases appeared in children born after the wards had been fumigated. These cases were specially severe ones, and showed furuncles and paronychia. After this, only two more cases developed, one on August 9th, the other on August 13th. These were very mild in character.

Of the mothers, three were attacked, and in each case the point of infection was the breast. One had blisters only, but the other two developed abscesses. There were thus twenty-two cases, nineteen infants, and three mothers. There was very little constitutional disturbance, and the children all throve, except one weakly cyanotic infant who died. Pemphigus was not the cause, but it probably hastened death.

About 30 per cent. of the children in the hospital at the beginning of the attack were affected, and 27 per cent. of those born afterwards. In several cases the eruption occurred as early as the third day, and in others as late as the fourteenth, nineteenth and twenty-first days. Cultures from the blisters showed the staphylococcus aureus.

The treatment adopted was washing the skin with a weak bi-chloride solution, opening the large blisters carefully, so as not to allow the contents to touch the sound skin, and dressing with dry boracic acid or boric ointment. This treatment, though it probably did not shorten the duration of the attacks, was soothing to the infants. The average duration of the eruption was eighteen days. The conclusion arrived at is, that the only

sure method of stamping out an epidemic of this disease is by strictly isolating the affected mothers and infants.

The origin of the disease is obscure, but it is undoubtedly a product of infection; but, curiously enough, inoculations from the vesicles have failed to produce the disease. It is attributed to the same cause as puerperal sepsis; but in this instance the hospital is expressly stated to have been quite free from puerperal sepsis. Some authorities maintain that the cause is syphilis; but there were no traces of syphilis in any of these cases. The writer mentions several other epidemics. The classical epidemic always referred to is that which occurred in the Maternity Hospital of Paris, and was reported by Hervieux. It lasted from June 1867 to January 1868, and 150 babies were affected. Olshausen has also reported an epidemic which he observed in Halle. Hundreds of children were affected in the practice of certain midwives. In this epidemic the vesicles appeared within from six to twelve hours, chiefly in the inguinal regions and on the head. Bloch has reported an epidemic in a Foundling Hospital, of about twenty cases, all of which proved fatal. He, among others, maintains that there are two forms of the disease, benign and malignant. In the latter the temperature is high, and there is marked indication of septic infection. These are nearly always fatal. In Bloch's fatal cases, cultures from the vesicles gave staphylococci, and from the blood, streptococci. During the epidemic there were some mild cases in the hospital. Cultures from the vesicles of these gave staphylococci, but no streptococci were found in the blood.

In Britain, M'Guire observed an epidemic in the outdoor department of a lying-in charity in Richmond. Of twenty children born, eighteen were affected and eight died. In addition, a number of mothers and of older children suffered. In all the fatal cases the umbilicus was inflamed, and he supposed that infection had occurred through it. He found the staphylococcus aureus in the vesicles, but he gives no record of blood-cultures.

New Books and New Editions

Manual of Antenatal Pathology and Hygiene: The Embryo. By J. W. Ballantyne, M.D., F.R.S.Ed. Pp. xx. + 697. Edinburgh: Wm. Green & Sons. 1904. Price 21s. net.

The physiology of the embryo is organogenesis, its pathology, organogenesis gone astray—that is to say, embryonic pathology

is teratology. This brilliant generalisation is the thesis of Dr Ballantyne's new volume. In a former work he dealt with fœtal pathology; in the fœtus the organs are laid down, and have functions comparable to those of post-natal life, hence disturbances of fœtal pathology give rise to diseases, but diseases of the embryo show themselves as malformations.

The volume before us may be divided into four parts—the introduction and sketch of embryo-genesis, the general principles of teratology, the description of teratological types, and the short study of germinal pathology. As the second of these, undoubtedly the most interesting, is also the most important, we may be allowed to devote most attention to it. Firstly, then, the three-fold factor—physiological (already referred to in the opening sentence of this review), amniotic and germinal—of embryonic pathology is discussed. The amnion, though its exact mode of origin in man is unknown, probably plays as important a part in embryonic as the placenta does in fœtal pathology. This is certainly the case in the chick, and the association of amniotic adhesions, etc., with human monstrosities points in the same direction. The projection of the germinal factor into embryonic pathology is shown by the heredity of certain malformations, and in the effect of twinning (determined during germinal life) in producing abnormalities. The section dealing with teratogenic theories of the past is not only an interesting chapter in the history of medicine, but is worthy of the attention of the anthropologist as a study in the evolution of thought and belief. Dr Ballantyne's erudition and industry are nowhere better displayed than in the array of facts he marshals here, showing how, in remote civilisations, the production of monsters was ascribed to jinns, gods, and planetary maleficence, how with the rise of Greek culture natural causes superseded these, and, though choked for a time by the weeds of mediæval superstition and scholasticism, blossomed anew with the revival of learning, to diffuse the seeds of modern ideas. Considerable space is devoted to maternal impressions, and the only criticism we have to make on Dr Ballantyne's volume is to wish that he had nailed down a little more firmly the coffin lid of this venerable creed. It is true that he categorically disclaims a belief in maternal impression, but, coming as it does at the end of a historical account of the subject, a thoughtless reader might be disposed to place that opinion in series with those that have preceded it, and, for lack of having the nature of the evidence pointed out, conclude that, after all, there is "something in" maternal impressions. Now it is perfectly plain that the belief in

maternal impressions is very largely, if not entirely, an instance of what has been conveniently termed "a survival in culture." By way of analogy, let us take another, grosser superstition, which, though happily less prevalent, still exists —to wit, the belief in spiritualism. Dr Ballantyne, as we have said, has proved the universality, both in time and ethnographical distribution, of the maternal impression theory; it can equally be shown that the various forms of spirit manifestation—rapping, voices, levitation, and so on—have existed, practically unchanged as to their nature and interpretation, throughout all stages of culture. A very slight acquaintance with primitive thought shows us that the maternal impression theory is absolutely natural, and might indeed have been predicated of our ancestors, for the most rudimentary philosophy of which we have any knowledge is based on the notion underlying it—the association of ideas, or that like produces like. The author, of course, knows as well as anyone the bearings of his argument as explaining the belief, but leaving untouched its objective validity; and that the correctness of the maternal impression theory stands or falls by scientific observations on the present, irrespective of its evolution. The simple fact that most deformities arise before a woman knows that she is pregnant, goes far to dispose of it, and places on those who hold to the theory the onus of proof.

Coming to surer ground—teratogenic theories of the present —uterine trauma, intra-abdominal pressure, and the effects of twins, are reviewed under the general head of pressure theories. Next come the nosological theories—fœtal diseases, and diseases of the adnexa, particularly the amnion. The latter is dealt with at length, there being considerable evidence that this structure, whether from disease, by exerting pressure, or by being malformed, may play a part in the production of monsters. Here it is right to point out that there being no hard and fast break between embryonic (organ-building) and fœtal (organ-functionating) life, some organs may become diseased during the former, and others acquire malformations during the latter of these periods. It is also probable that the formation (and therefore potentiality for becoming diseased) of the amnion precedes that of the embryo, hence amniotitis, etc., may be directly teratological. Next we pass to the embryological theory, arrest of organogenesis, inadequate alone to explain all monstrosities, being supplemented by the amniotic factor. Dareste's work on Experimental Teratology is quoted, showing, *inter alia*, that toxic agents may produce monsters. In arrest of development, amniotic changes (toxic ?), morbidity of the germ, and lastly, fœtal diseases,

the author finds the principal causes of monstrosity. The lengthy argument we have summarised is complicated, and sometimes difficult to follow, not from any absence of lucidity, but from the complexity of the facts. The reader who finds it a species of intellectual gymnastic will admire Dr Ballantyne all the more for having established some sort of order in the chaos, though probably he will never realise the labour which the process entailed. The remaining two-thirds of the book deals with the classification and description of monsters. This part will prove an invaluable source of reference, for we suppose there is no known freak but is mentioned in these pages. The bibliographies are full, as they always are in the author's work. The pathology of the germ, which includes double terata, is a veritable region of mystery, and Dr Ballantyne's treatment of it stimulates, if it rarely satisfies, our curiosity; some day, we hope, he will develop his sketch of the subject in a third volume on antenatal pathology. He is not prepared to deny absolutely the transmissibility of acquired characters. His conception of morbid heredity as a break in, or degeneration of heredity, a tendency acquired in the germinal epoch of the individual to lose some of the ancestral developmental energy, is an entirely novel and highly suggestive one. To have written a book which is, and will remain, the standard work on its subject, is an accomplishment of which anyone may be proud. This Dr Ballantyne has done, and his School is glad to share the credit with him. He has shown all the qualifications for the task, among them the knack of lightening the reader's progress by an occasional reference in a lighter vein—witness Drebell, "who had an art by which he could produce a fly in an hour's time anywhere." Dr Murray, too, will have to look to his laurels when the *H. E. D.* gets to "moon calf," but probably he will utilise Dr Ballantyne's philological researches. Finally, the book owes not a little to the publisher; its appearance is worthy of its contents, and leaves nothing to be desired. The numerous illustrations are most successfully reproduced, and the whole volume is a highly creditable example of the printer's art.

Aequanimitas, and other Addresses. By WM. OSLER, M.D., F.R.S. London: H. K. Lewis. 1904. Price 7s. 6d.

PROF. OSLER has published under the above title a selection of the addresses which he has delivered at various times, in various places, and to various audiences. Some of them are familiar to us in this country; others, delivered under circumstances less public, are new. But they are all good, and all abound in that

charm of language which is so associated with their author. How so busy a man could find time for the wide reading which the addresses give evidence of will be a mystery to those who do not know that the busier one is, the more time has one for everything. In a final word, the author gives some advice as to reading, which, we take it, is mainly meant for medical readers. "Before going to sleep, read for half an hour, and in the morning have a book open on your dressing-table. You will be surprised to find how much can be accomplished in the course of a year."

All the addresses—some of them are better than most sermons—are good, and each reader will probably have his own favourite. The one which gives the title to the volume, "The Master Word in Medicine," "Chauvinism in Medicine," and "Teaching and Thinking," are our selection; and "Internal Medicine as a Vocation" should be learned by heart by all young physicians.

We commend some passages in "Teacher and Student" to those who are still swithering in their views on the age limit, and we quote with satisfaction from "Internal Medicine as a Vocation": "In the second place, I feel sure that ultimately we shall develop a system of extra-mural teaching similar to that which has been so successful in Edinburgh, and this will give employment to a large number of the younger men. . . . If we ever are to give our third and fourth year students protracted and complete courses in physical diagnosis and clinical medicine extending throughout the session, and not in classes of a brief period of six weeks' duration, I am confident that the number of men engaged in teaching must be greatly increased."

We do not know when we read a book with greater pleasure, and every medical man or woman who does not receive it as a Christmas present should buy it.

The Ambulance in Civil Life, and the Proceedings of the Metropolitan Street Ambulance Association. By REGINALD HARRISON, F.R.C.S.

WE congratulate Mr Harrison on so successfully inaugurating the Metropolitan Street Ambulance Association. The only wonder is that the first city of the world has lagged in this matter so long behind many towns in England and Scotland. Twenty years ago we were much interested and instructed by seeing the excellent and expeditious ambulance arrangements at the Northern Hospital, Liverpool, which were based on the splendid system in New York, with which the name of Howard, of artificial respiration fame, is so honourably associated.

In Scotland, thanks to the St Andrew's Ambulance Associa-

tion, cities such as Edinburgh and Glasgow, and many country districts also, are well equipped in this direction. In addition to ambulance waggons and trained attendants, even ambulance broughams and landaus may be had.

We agree with Mr Harrison that the common cab is perhaps the worst vehicle ever constructed to carry injured persons. It must have been responsible in times past for converting many simple into compound fractures.

The immense size of London doubtless caused difficulties in the way of organising a street ambulance association, but now that it has been begun we wish it every success.

Biographic Clinics. Vol. II. The Origin of the Ill-health of George Eliot, George Henry Lewes, Wagner, Parkman, Jane Welch, Carlyle, Spencer, Whittier, Margaret Fuller Ossoli, and Nietzche. By GEORGE M. GOULD, M.D. Pp. 392. London: Rebman, Ltd. 1904.

THE first volume of this work was reviewed in our pages (Vol. xiii. p. 181).

Dr Gould is dissatisfied with the reception which it met from "the leading medical journals" and the "official spokesmen of the profession," whoever they may be. He considers that his views on the intimate relation of "Eyestrain" to a host of morbid affections in men, women and children have not been fairly placed before the profession on account of the "malfunction of their journalists and reviewers." He therefore restates his convictions more fully in this second volume and has extended his studies to the life histories of a further series of distinguished persons, illustrating as he believes the baneful effects of unrecognised optical errors, more especially upon a literary career. This is interesting reading, but rather speculative science. Dr Gould has only himself to blame if his professional brethren decline to accept his views in their entirety on such hypothetical deductions as these two volumes afford. He has apparently not discovered any more accurate methods of estimating the ocular refraction than those already employed by ophthalmic surgeons in this and every other civilised country, and until he puts before us more positive proofs of his contentions drawn from actual clinical observations, we can only say that what is true in his assertions is not new, and what is new is not proven.

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THE SCOTTISH
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OBSTETRIC VIEWS THAT NEED REVIEWING

By WILLIAM STEPHENSON, M.D., F.R.C.S.,
Professor of Midwifery, University, Aberdeen

(*Continued from p.* 10)

II.—Concerning Uterine Action.

Contrary to opinion long entertained, the uterus must be regarded as possessing a twofold mode of action—contraction and retraction. The more frequent use, in the present day, of the latter as well as the former term, shows that two properties are recognised; but in a hesitating manner, as if not assured of the truth, or not fully realising its import. Where difference of opinion comes in is, that whilst some writers see in each a distinct and independent function; others cannot free their minds from the belief that retraction is but a condition, coming after, and dependent upon contraction. Much turns on which view is correct, even to our thoughts and modes of speech. The subject lies at the very basis of obstetric science; and on the clear understanding of the difference between the two rests the answer to many a practical question.

To attain precision in our modes of thought and expression, it is necessary, when speaking of the uterus, to limit the use of the word contraction to its physiological meaning—the discharge of muscle energy in response to a stimulus. When a muscle contracts, it shortens; and hence, unthinkingly, it has become customary to speak of all shortening of muscle as contraction. But a muscle can shorten without contracting; it may contract without shortening; and more, when overweighted, it may even lengthen when under the stimulus to

contract. It is the shortening of muscle without the contraction stimulus, that is expressed by the word retraction. One other idea is embodied therein and makes up the difference between the terms: when the uterus has been diminished by contraction alone, it can readily be restored to its original size; when it has retracted it offers considerable resistance to an expanding force.

When in the walls of a pregnant uterus any marked change occurs, tending towards extrusion of the ovum, such as the opening up of the internal os, the obstetric mind has hitherto assumed contraction of the muscle as the cause. It may be true, but not necessarily, for the fibres can shorten without contracting.

To make this clear,—a non-gravid uterus may be regarded as in an unstrained condition, that is, no stress is altering its natural form. Under the influence of a growing ovum, the body of the uterus expands, the walls "unfold" and are stretched: they are now in a state of strain; and that state is maintained in equilibrium by the continuous action of the stress. Being muscular, the uterus possesses a store of potential energy, sufficient, when rendered kinetic, to free itself from the stress: in other words, to expel the contents by contraction. Such is the ordinary course of events.

But the uterine contents—the distending force—may be removed by other means, as by Cæsarean section. The operator does not wait for, or try to induce uterine contractions, he would rather avoid them; he cuts in and must deftly lift out the child, otherwise the uterus closes tightly upon it. The cause of expansion being removed, the uterine cavity rapidly lessens, the walls shrink. This is retraction, not contraction.

The movement is one in virtue of the internal molecular tension of the walls; a force dependent upon the state of the nerve centres, as well as that of the muscle itself; a force not intermittent, but continuous, ready to act whenever the opposing forces are lessened or removed.

This property has been spoken of as elasticity, but the term is liable to lead the mind astray, for the action of the uterine walls differs from ordinary elasticity as much as the elasticity of a soap-bubble differs from that of an india-rubber balloon.

In natural labour the contents are expelled by powerful and repeated contractions. Retraction follows; not, however, because of, or in proportion to, the number of the contractions; but simply from and in proportion to the diminution in bulk of the contents. The same result follows by whatever means the uterus is emptied. Thus we conceive of a two-fold action of the uterus, contraction and retraction; each distinct and independent; each fulfilling its own part in the phenomena of labour. It will be well to summarise their differences, and note where the value of each comes in.

1. Contraction is the result of a discharge of the potential energy of the muscle in response to a stimulus: retraction is due to the molecular tension of the tissues, whereby they tend to recover their original state when the conditions causing a strain have been lessened or removed.

2. Contraction is a force peculiar to muscle: retraction is common to many tissues, in a varying degree, but specially developed in the uterus as an organ composed largely of muscular and elastic tissue.

3. In ordinary course retraction follows on contraction, but is independent. The effect is not in proportion to the contractions, but to the removal of the stress under which the walls have lain.

4. Contraction is comparatively short in duration and intermittent: retraction is a continuous force, ever ready to act.

5. Contraction is a powerful force, capable of overcoming considerable resistance — it is the only uterine expulsive force: retraction on the other hand is comparatively feeble, it cannot expel a clot of blood; when free to act, it gathers the walls together, keeps them in contact with the contents, and moulds the inner surface to their form.

6. When the uterine cavity has been diminished by contraction alone, the walls readily yield again to any distending force: when retraction has taken place, they offer considerable resistance to expansion.

7. Consequently, contraction can empty the uterus, but cannot keep it empty: retraction cannot empty the uterus, but can keep it empty once the contents are expelled.

8. In contraction the whole muscle is called into play: with retraction the action may be general or purely local, with-

out affecting the rest of the uterus; it may be more advanced at one part than at another.

9. Permanent thickening of the muscle and lessening of the cavity are due to retraction, not contraction.

These differences will be brought out further when considering the changes which take place under the influence of the two-fold mode of action. Without such a combination, the uterus could not perform its high function, the birth of a living child, with safety to the mother.

How the Cervix is expanded before Labour.

The question, reserved in the former paper, may now be considered:—How, shortly before labour, the cervix is taken up to share in the formation of the uterine cavity.

The problem has been simplified by the changes already stated in the views regarding the structure and function of the uterine musculature. There is no antagonism between muscle and muscle; no muscular activity is required to secure the safety of the ovum during gestation; the function of the muscle is to expel, not to retain the contents; the retention of the ovum is secured by the adhesion of the membranes, and the resistance to expansion of the cervical connective tissue.

These conditions of security are modified before the onset of labour. Attenuation of the attachments and increase in plasticity of the tissues are in progress. The membranes become separated from the uterine wall around the internal os, —without this no dilatation can take place; and lastly, the resistance of the cervical tissue is diminished by physiological relaxation.

These changes belong to dehiscence; and one can readily understand how the time when dilatation commences will vary, earlier or later, according to the more or less advanced state of the process of ripening. The order in which the changes occur is known likewise to vary. The internal os may yield first, and the dilatation progress from above downwards; or the relaxation of the lower portion of the cervix may be in advance, and admit one or two fingers, before the membranes around the os have been detached.

Muscular action also comes into play, but is it contraction or retraction? I have before figured the pregnant uterus as a system of equilibriating forces; this principle may be applied to the present problem. From the distension of the uterus the musculature of the lower uterine segment is in a condition of strain. The internal os has not yielded to the stress, because of the resistance of the cervical connective tissue and the adhesion of the membranes. As these conditions of the equilibrium are lessened or removed, the opposite force of retractility of the muscle is free to act, and does act, thus starting the process of dilatation. The force is feeble, but it is continuous, and the action is furthered by the weight of the mobile uterine contents pressing on the softening cervical tissue.

Should contractions occur, the process is hastened and perfected, but they are not essential. Observation has shown that the change can be completed without this additional force. The movement is simply the passing from one state of equilibrium to another, by the lessening of one force giving freedom of action to its opponent.

Thus we can conceive of the "silent and painless process that goes on for hours and days before the supervention of active painful labour." It is the last stage in the ripening of the fruit.

Whether effected wholly during dehiscence, or overtaken in its progress by contractions, the effacement of the cervix as a canal, is generally complete before the vaginal portion of the cervix gives evidence that labour has begun.

The Obstetric *v.* the Anatomical Divisions of the Uterus. The Changes in the Walls.

That the obstetric divisions of the uterus do not correspond with the purely anatomical has been too much overlooked; hence have arisen confusion of ideas and much futile discussion. Viewed from the standpoint of labour, the division is no longer into body and cervix, but into upper and lower segments; there comes to be but one cavity; the cervix, as cervix, is effaced.

Let us follow the changes in order. For the time being, by the funnel-shaped opening of the canal, the internal os, as a landmark or boundary, is obliterated; writers are still disputing how far it travels. The cervix being no longer required to secure the retention of the ovum, its tissues are turned to another purpose. The mobility of the muscular lamellæ (p. 4) permits of considerable drawing up of the inner layers, without the whole thickness of the walls participating in the movement. As expansion progresses downwards, the close felted tissue layer comes to line the lower segment, adding its strength to the walls, and so renders them better able to bear the strain presently to be thrown on them.

The *portio vaginalis* does not share in this early extension of the uterine cavity. Retraction has no influence upon it, because this disc-like structure, with the os in the centre, is not part of the musculature (p. 8); it is a close felted tissue, and yields only to the powerful force of contraction. Obstetrically, the portio belongs to the vagina more than to the cervix; its outer margin is situated at the reflexion of the external muscular layer into the vaginal wall. In the process of the first stage of labour, the dilatation of this outer ring of attachment and the drawing up of the vagina precede the dilatation of the inner ring, the os uteri: the tissue develops more or less into a diaphragm between the uterine and vaginal cavities.

At this early period of labour the walls forming the extended uterine cavity have a fairly uniform thickness, though often slightly thinner at the lower than the upper part. During the extrusion of the ovum this *lower segment* is subjected to an expanding force, its superficies is increased, and the walls are stretched probably beyond the limit of retractility.

The *upper and larger segment* undergoes an opposite change. By muscular contraction the superficies diminishes, whilst as the bulk lessens, retraction retains the walls in close contact with the contents. When the uterus is empty, the anterior and posterior inner surfaces are in contact, the cavity is closed, the walls are thick, firm, and resistant. Compared with this, the *retraction zone*, the lower uterine segment is flaccid and collapsed; it is the *zone of dilatation*.

As at the beginning of labour the walls present throughout

the same stratified arrangement, it can hardly be supposed that the plane of differentiation is determined by any difference in the internal structure. Besides, this plane is not always at the same level—higher in some cases than in others. There is, however, an upper limit beyond which it does not pass—the line of the firm attachment of the peritoneum. Now, before the internal os is opened up, the lower portion of the uterine ovoid, lined with decidua, surrounds the presenting part. This, necessarily, must be dilated. How far, then, this expansion movement will advance will depend upon, and be in proportion to, the greatest circumference presented by the fœtal body. To produce this change in the walls, two forces are in action—the pull of the uterus on itself by contraction, and the wedge action of the body that is being expressed. When the latter force is defective, as when there is great resistance, the pull of the uterus on itself will be longer continued, and the plane of differentiation carried higher up, because the diminution in superficies of the upper zone, under contraction and retraction, can take place only longitudinally; there is as yet no corresponding movement closing in the walls in a transverse direction.

The firm attachment of the peritoneum over a portion only of the uterus exercises a determinant influence on the changes under consideration. The serous layer is intolerant of expansion; to a suddenly applied expansive force it will yield by rupture rather than stretching: hence the reason why the portion of the walls liable to dilatation is not covered by peritoneum, or has that tissue only loosely attached.

We have already taken note that a part of the walls covered by decidua must undergo expansion, consequently remains of decidual tissue are found, when examined microscopically, in the upper part of the zone of dilatation. Again, from the great stretching of the mucous membrane of the cervix, it loses much of its characteristic appearance; hence the difficulty that has been experienced in recognising the exact situation of the internal os. The point is a matter of no value; for the distinction is no longer anatomical between the uterine body and cervix; but obstetric, between retraction and dilatation, in different portions of one continuous wall.

When the uterus is empty, there is, throughout the upper zone, a thickening of the walls, and closure of the cavity.

Where retraction ends is marked by a firm rim—the retraction border. The ring of Bandl, to which so much attention has been paid, does not necessarily coincide with this retraction border felt after delivery. Bandl's ring, seen as a projecting ridge in frozen sections of uteri in the second stage, is but one of the inequalities in thickening found at various parts: they coincide in position with any depression in the contour of the uterine contents, as in this case that of the fœtal neck. It is the depression in the contents, that determines the locality of the irregular thickening, in the wall; afterwards such inequalities are merged in the general and uniform retraction.

The absence of a like degree of retraction in the lower zone is due to it including the whole of the cervix, whose inner felted layer must be endowed but sparingly with retractility; and the lower portion of the uterine body that has been dilated has, by stretching, lost much of the same property; hence the whole segment remains flaccid and collapsed.

The conception of the structure of the uterus, and of uterine action, presented in these pages, differs widely from what has been implicitly accepted and is taught in the present day. New facts have been accumulating, but more thought has been spent in the endeavour to reconcile these with our old ideas, than to modify our ideas in accordance with the facts. Whoever has attentively followed the investigations of recent times, must have felt doubt growing up as to the truth of many a traditional belief. The views here advanced have been gradually taking form in my mind for more than quarter of a century, during which time I have had yearly to review the subject with my class. In occasional papers I have before dealt with portions of the subject; I have now endeavoured to present it more as a whole, that the bearing of one part to another may be seen. As regards the structure of the uterus, much yet awaits investigation; but it is an advance to get rid of the idea of longitudinal and circular fibres with antagonistic and sphincter action; and to recognise the unity of the musculature, its lamellate arrangement and its plastic nature. The uterus is a powerful muscle, but it is not all muscle; the cellular, connective and elastic tissues, which enter largely into its composition, have an important part to play. They alone

give security to the ovum during gestation; the function of the muscle is to expel, not to retain the contents. This rids the subject of some vain imaginings. The introduction of the idea of a process of dehiscence, or ripening of the fruit, distinct from, and for weeks preceding, the active process of extrusion, which everyone understands as labour, gives greater scientific precision to the conception of uterine changes. To understand correctly the phenomena of labour, it is necessary fully to realise the two-fold action of the uterus, the presence of a force of retraction as well as that of contraction. And, lastly, by remembering that the obstetric divisions of the uterus do not coincide with, and are not determined by, the purely anatomical, a difficulty is removed round which much futile discussion has swirled.

CONSIDERATIONS RELATING TO THE IMPROVEMENT OF THE MILK SUPPLY, WITH SPECIAL REFERENCE TO THE CITY OF EDINBURGH[1]

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IT may be said, and perhaps with truth, that this communication would have been better suited for a Public Health Congress, where it might have been discussed by Medical Officers of Health, whose duties lead them to a closer study of such questions.

While entirely agreeing with this, I may say that the problem as to the control of our milk supply has been debated in every recent Health Congress, and indeed it has an International Congress to itself. I think that the time has now arrived when this question should be referred to general medical practitioners, as each one of these is in reality an Officer of Health. Through them the public would become educated to a fuller appreciation of the necessities for a more stringent regulation of our milk supply.

Interest in this subject is not new to me. Fully fifteen

[1] Read before the Medico-Chirurgical Society of Edinburgh, 18th January 1905.

years ago I turned my attention to the condition of our milk-shops and cowsheds. This was many years before the subject was taken up by sanitarians generally, and I gladly welcome the amount of attention which has been given to it during the past few years.

The relation of the milk supply to infant hygiene is close and intimate. When we remember that fully three-fourths of the infant population of towns depend entirely on an artificial milk supply, we can understand how far-reaching the evil effects may be if this supply be inadequate or improper.

The selection of a proper dietary is of the greatest importance to the population as a whole, but during infancy and early childhood this importance immeasurably exceeds that necessary at any other age period. Growth and development are intensely active during early life, and an improper diet then given may either inhibit or so alter those processes as to lead to a more or less permanent alteration. The ordinary diseases of infancy and childhood also exert a far more active and injurious influence on improperly fed individuals.

Without discussing the pathogenesis of infantile disease, one may yet reason why so many infants and young children suffer from intestinal tuberculosis. It is obvious that the tubercle bacillus cannot gain entrance to the system through the intestinal mucous membrane unless the latter be diseased. It is more probable that these organisms penetrate a debilitated and feebly resisting epithelial lining to the intestinal tract, and that this loss of the normal resisting power is due in very many cases to the ingestion of milk which is commencing to putrefy. Diarrhœa is readily produced in children by partaking of food which is beginning to "turn," and milk is, of all organic fluids, most prone to undergo putrefaction. Of the many organisms present in milk, the most common are those which induce the lactic acid fermentation. This property belongs to a large number of micro-organisms, which are sometimes termed "dairy bacteria," and the first easily recognised sign of putrefaction in milk is its "souring," due to the presence of lactic acid. The sourer the milk, the greater is the degree of putrefaction.

The normal reaction of freshly drawn milk from pasture-fed cows is either alkaline or amphoteric, whereas that from

stall-fed cattle is often slightly acid. This acidity is caused by the lactic acid bacillus, either in the milk duct of the cow's udder, in the pails, or in the air of the cowshed. In any case, however, the lactic acid fermentation commences very soon after the milk has been drawn, and progresses either slowly or rapidly, according to the manner of treating the milk and the atmospheric or weather conditions.

The amount of lactic acid present in a specimen of milk may be taken as a very fair standard of the degree of putrefaction present. The higher the degree of acidity, the more advanced must have been the lactic acid and other fermentations, and by consequence the greater the number of organisms present in the milk (bacillus coli communis, proteus vulgaris, cocci, etc.).

As this early acidity of milk is due almost entirely to lactic acid present, and as this acidity is easily estimated, I employ it as a standard to determine the freshness or staleness of ordinary milk.

It may be asked, What is the condition of the milk as ordinarily bought in milk shops in Edinburgh? Is it fresh and suitable for an infant's food or not? I took the trouble to determine this in the case of 31 milk shops in this city. In all of them the milk was sold as fresh new milk, and the amount of lactic acid varied as follows:—

In one instance the acidity corresponded to 0.112 per cent. of lactic acid.

In four it varied from 0.116 to 0.135 per cent.
In nine „ „ 0.153 to 0.18 „
In nine „ „ 0.181 to 0.2 „
In seven „ „ 0.2 to 0.25 „
In one the acidity was above 0.3 per cent.

These samples were taken in the height of summer with a mean temperature of the outside air varying from 57° to 74° (Fahr.), and generally from shops in the poorer districts of the city. In 54.8 per cent. of the dairies so examined the acidity of reputedly fresh milk was above 0.181 per cent., and this is not a satisfactory condition of affairs. When lactic acid is present to 0.2 per cent., the milk has an undoubtedly sour taste; and when it has reached 0.25 per cent., the sourness is

marked and such milk is unfit for consumption by anyone, not to speak of it as a food for infants.

In other words, in more than half of the shops in which milk was sold as fresh, it had reached a stage of putrefaction such as to preclude its use as a food for infants and young children. As will be readily understood, the increase in the acidity of milk is in close relation to the increase of the bacteria.

Now, if lactic acid be given even in minute amounts to infants it produces gastric irritation, flatulence, pain, looseness of the bowels and diarrhœa. If infants be fed on an organic liquid more or less rich in this acid, and containing at the same time, it may be, myriads of other pathogenic and fermentative organisms (B coli communis, and cocci), the intestinal mucous membrane undergoes severe irritation with resultant diarrhœa, and only too often a fatal termination. I do not refer to the disease so fatal to infants and which also affects adults, viz., epidemic summer diarrhœa, which I believe to be caused by a special organism (probably one of the colon group), and which results generally from "infection of the milk due to pollution with excreta of a specially virulent kind" (Delépine, *British Medical Journal*, 21st Feb. 1903). In such a case the degree of acidity, coagulation of the milk or smell is of no importance.

The experiments of Arloing, Ravenel, Böllinger, Hamilton, as well as the conclusions arrived at by the members of our own Royal Commission on Tuberculosis (Interim Report issued 1st June 1904), all prove the intercommunicability of human and bovine tuberculosis. If tubercle bacilli of bovine origin be introduced into an intestine with a mucous membrane debilitated by the ingestion of such acid milk as I have described, the conditions are present for the easy passage of such organisms into and through the mucosa, with the result that abdominal tuberculosis develops.

This seems to me to be a fair and reasonable explanation to account for the great frequency of intestinal tuberculosis in children — the presence of a highly irritating acid in the food, which so lowers the vitality of the intestinal mucosa as to allow of the penetration of tubercle bacilli also introduced in the food.

It may be argued that all milk does not contain tubercle bacilli, and that with care no such organisms should be found in any milk. But this is just the whole question—the want of care in the conduct of the milk supply. The presence of one cow yielding tuberculous milk will infect the whole milk of that cowshed. The percentage of samples of milk which contain tubercle bacilli varies very greatly from time to time, as can be easily understood, but the percentage so infected is almost always considerable.

In Manchester, Professor Delépine found that 3.7 per cent. of the samples of city milk contained tubercle bacilli; in London the figure has been 22 per cent.; in Liverpool 28 per cent.; in Paris from 33 to 40 per cent.; and in Cambridge Professor Kanthack once found that 56.2 of the samples of milk yielded these organisms. The milk from country dairies shows as a rule a far higher percentage of these organisms due to an even greater carelessness and greater dirtiness of the cowsheds than is found in town cowsheds. In Berlin, on the contrary, where inspection of dairies and farms is carried out thoroughly, only about 7.5 per cent. of the samples of milk contain tubercle bacilli.

It is clear, therefore, that tubercle bacilli are very frequently present in ordinary milk. If, now, during some period in which such tuberculous milk is being given to an infant as its food, the resisting power of its intestinal mucous membrane be weakened through the ingestion of milk containing lactic acid, it may be readily granted that the graver disease may be produced.

As is well known, the mortality amongst children under two years of age follows closely variations in the mean temperature. In the city of Edinburgh these relations were as follows during the years 1891-4.

	1891.	1892.	1893.	1894.
Deaths from Diarrhœa in children under 2 years.	48	47	82	38
Mean temperature from June to September inclusive . . .	56.6	54.8	57.9	55.7

This great mortality indicates that an immense number of

infants must suffer from this disease. The debility resulting must consequently be widespread, and must predispose to invasion by other diseases.

We are all agreed that breast-fed babies are much healthier than those brought up on cows' milk or on the many substitutes which flood the market. It has been abundantly proved that the children of Jewish parents enjoy much better health during their first year of life than do the children of the people amongst whom they live, and this is due to the fact that Jewish children are almost entirely breast-fed. I do not think that medical men take advantage of the opportunities which present themselves of inculcating on the public the immense advantages not only to the infant, but to the race, which accrue from maternal feeding. If medical men do preach this doctrine, it seems to fall, as does much spiritual advice, on unheeding ears, for each year sees a larger proportion of infants brought up on the bottle.

Let us now consider why tuberculous diseases are so common in dairy cows. Looking first at the conditions under which milk cows are kept and fed, and more especially as they relate to the cowsheds in and near the city of Edinburgh, are these what a medical man would consider satisfactory? I am sorry that I cannot answer this in the affirmative. My opinion is that the sanitary requirements of our local cowsheds and byres are not satisfactory. The conditions presently found may satisfy the legal requirements of the Dairies, Cowsheds, and Milk-shops Order of 1885, or the Public Health (Scotland) Act of 1897 (Sections 60 and 61), and thus the buildings may escape the strictures of the Medical Officer of Health or of the Sanitary Inspector. I am certain, however, of no contradiction, when I say that there is no other article of food of which I am aware which is made and gathered under such insanitary and even filthy conditions as is milk. Besides this, it is almost our only article of food which is partaken of in its natural condition. Most of the other articles of diet require cooking to fit them for dietetic purposes, and thus their sterilisation is assured, or else they are capable of being washed or otherwise cleaned. It is not so, however, with milk. We either partake of it as it is, or still more culpably give it as the sole sustenance of our infants.

Through the kindness of the Public Health officials, I have had the opportunity of visiting many of the cowsheds and byres in this city and neighbourhood. In passing, I may say that the visits of anyone not in authority are resented by most of the dairymen. So much is this the case, that little information can be gained by any private individual regarding the mode in which the businesses are conducted. This of itself is apt to create an unfavourable impression, as when any ordinary business is carried on as it should be, visitors ought to be welcomed.

The condition and surroundings of many of these byres has astonished me. Surely it is a disgrace to Sanitary Science that cowsheds should still exist in the centre of towns. There are many of these still in Edinburgh, and these are often situated in densely populated localities. At present there are 115 such city cowsheds, licensed to contain 3417 cows. On 1st December 1903 the number of cows in the city amounted to 3072. In many cases byres containing from 20 to 40 cows are situated behind lofty tenements, and approached by narrow lanes or alleys. In fact they are hidden away in most cases, so that they have to be sought for. The number of cows kept by one dairyman in one locality may reach as high as 47. Of necessity the animals are never allowed out from such city sheds. From the time when they are bought as milk-giving cows until they are sold again, they are kept closely confined. Not only is this the case in towns, but the same holds in suburban districts. I know of byres on the outskirts of the city containing large numbers of cows, not one of which is ever outside the sheds. The requirements of the city of Edinburgh in respect to milk are by no means supplied by the city byres, and altogether in Edinburgh, Leith, and in the surrounding districts, there are about 25,000 cows which supply milk for the wants of the populace.

It is generally understood that each cow gives milk for from nine to fifteen months. It is, however, a by no means infrequent occurrence for cows to be confined for much longer periods, as in one extreme instance which came under my observation, for six years. Practically each cow is kept as long as she is giving a quantity of milk which pays. It may well be believed that the longer a cow is kept in confinement, the

poorer will her milk become. One may not infrequently notice a cow being driven along the streets and walking painfully and with difficulty. This laborious progression is caused by the undue length and softness of the hoofs. During the long period of the animal's inactivity in the cowshed, the hoofs grow so long as to make even a short walk to the sale-room or to the slaughter-house a matter of painful effort to the cow. It is a common practice to cut the hoofs to enable the animal to stand properly in the cowshed.

Were cowsheds used only to house the animals during the night, perhaps no great fault could be found. When, however, it is remembered that cows are kept in byres night and day not only for months, but for years on end, can it for a moment be believed that they are in a fit state of health to yield a perfectly normal milk.

In their native condition, oxen are gregarious, and live entirely in the open air, seeking little or no shelter of any kind. We entirely subvert this normal, and therefore healthy, condition of affairs by confining cows for long periods in sheds.

Not only are they shut up for months or years, but, in my opinion, they are also grossly overcrowded. The cubic space of air which might suffice for each animal if confined only for a few hours, becomes utterly inadequate for long periods of confinement. It may be answered that the cubic space for each cow is sufficient, seeing that it comes up to the requirements of the bye-laws. Perhaps it does come up to the legal requirement, yet assuredly there is a great practical difference between the actual and the available air space. Every cubic foot of space must evidently be calculated as air space in cowsheds in order to license them for the number of cows, and yet much of this cubic space is valueless for such a purpose. For example, the triangular roof space is always calculated as part of the cubic space, yet it is of no value, in so far as it furnishes no air for the respiration of the animals. In several byres, in order to obtain this cubic space, part of the flooring of the loft above the stalls has been cut away, so that the air space in this loft might be calculated as part of the cubic space allotted to each animal. That such air space is not available for the respiration of the cows is easily ascertained, and still further, it may even act as a storehouse of foul air.

The cubic space recommended by the Local Government Board for each cow is 800 cubic feet. By the Rules and Regulations for Cattlesheds, Cowhouses and Byres of 1866, the municipality of this city enacted that in new cowsheds 800 cubic feet of air space must be given for each cow, while in cowsheds already existing the space might be 600 cubic feet. It is a remarkable fact that but few of the city cowsheds presently in use boast of a larger figure than 600 cubic feet, proving that a structure so easily erected has a lengthened existence when employed as a cowshed. While this is the law in Edinburgh, I have examined many cowsheds in the city where the *available* air space for each cow varied from 370 to 440 cubic feet. Now, a pauper in a common lodging-house in this city must get 400 cubic feet, while each prisoner in his cell has 800 cubic feet. Surely, therefore, the anomaly is great when a cow, which in weight is equal to six or eight average-sized men, gets only in reality about that given to the occupant of the casual ward, and a great deal less than is given to the convict. Besides this, there is no question but that the legal air space allowed to each cow is far below what it should be, and, as I have shown, in most cases the available air space falls far below even that recommended by law. In my opinion, the cubic space allowed to each animal should certainly be not less than 1000 cubic feet, and this should be distributed over a far wider floor space than is usual. In Edinburgh a stall for a single cow must be 4 feet wide and 8 feet long. In most sheds, however, each stall is made to accommodate two cows, and must then be 7 feet in width. This gives a space 3½ by 8 feet to each cow, or 28 superficial feet, which allows just sufficient room for the two animals to lie down with the legs drawn up. In either case the amount of floor space is utterly inadequate for the needs of animals tied up for prolonged periods. The unfortunate cow is in very much the same condition as the political prisoner in China or Tibet, chained up to a wall, and with hardly any possibility of movement. The passage which runs along the cowshed is often very narrow, being in many cases not more than 3 feet wide. The length of the stall, 8 feet, is so arranged that the urine and fæces of the animals is supposed to fall into an open drain which runs along the length of the shed. That this does not always

happen is evident from the condition of the animals' hides.

After all, however, the amount of cubic space per cow is not to be compared in importance to the amount of fresh air which ought to be supplied to each animal, and this is a point which, so far as my observations have gone, seems to have had but little attention paid to it. In our Edinburgh Municipal Act it is stated that "every cowkeeper or dairyman shall at all times provide proper light and ventilation for his premises, to the satisfaction of the sanitary inspector or any other person or persons authorised by the Local Authority." This allows of a very free interpretation, and so I have found it in this city. The amount of cubic space given to each animal has to be taken in relation to the ventilation. The smaller the cubic space given to the cows, the more rapid must be the current of air made to pass through the byre, in order to keep the air fresh. There is therefore greater difficulty in ventilating such small cowsheds without draught, or without unduly reducing the temperature. In order to keep the air of a room occupied by human beings fresh, the amount of air which each spoils or renders irrespirable per hour requires to be diluted about 600 times; or in other words, each person requires as nearly as possible 3000 cubic feet of fresh air per hour. As each cow vitiates about 14 feet of air per hour, on the same basis of calculation it ought to receive between eight and nine thousand cubic feet per hour in order to keep the air of the cowshed pure. One may presume that the average cow is hardly as clean as the average human being (though this premise may well be doubted), and it ought, therefore, to get an even larger amount of fresh air than that calculated. The question is, does each cow get this amount of fresh air, or anything like it? I affirm that cowsheds are notoriously badly ventilated. During the period when the doors are opened for the purpose of cleaning out the sheds the current of fresh air may be ample, but this is not the usual condition. I have on many occasions carefully examined the condition of ventilation of cowsheds during both summer and winter, and have measured with the anemometer the amount of incoming air at the supposed inlets, and the results have been highly unsatisfactory. The usual method of ventilation is to have as outlet either separate or

continuous ridge openings in the roof, and at the head of each stall, and at a height of about nine feet from the floor level, a perforated brick or metal plate is inserted for the introduction of fresh air. The total air inlet of many of these is very small. Such a method does not really ventilate the lower part of the byre, as in most cases the air coming in by these perforated openings is at once drawn upwards to the roof, and extracted by the ridge opening.

The cowkeeper as a rule has a perfect horror of ventilation. He knows by experience that when the cowshed becomes cold the yield of milk falls greatly. It is also affirmed that cows are so liable to chills that the dairyman cannot ventilate his cowshed freely. It is his opinion that fresh air for his cows is absolutely unnecessary, and that it is even harmful to the animals and inimical to his business. Even were such assertions true, a proper system of heating along with suitable means of ventilation would easily overcome these objections.

As a result of the insufficient amount of cubic space and the altogether inadequate supply of fresh air, the air in cowsheds is as a rule extremely vitiated and quite unsuited for preserving the health of the animals confined in them. In general also these byres are very insufficiently lighted, the windows or skylights being few and seldom cleaned. As invariably happens, dirt is a concomitant of darkness, and so cobwebs and dust cover the rafters and roof-trees or still further obscure the windows or skylights.

Apart from personal observations, milkers have frequently complained to me of the extreme heat of the byres even during the winter, and that they frequently suffered from chills on coming out into the cold air, and I myself have often felt the extremely hot and oppressive condition of byres during the daytime. If those who attend on the cows, and who can leave the shed at any time, feel the heat so oppressive and debilitating, what must the effects be on the animals constantly confined in such vitiated atmosphere.

I am thoroughly convinced that the extreme prevalence of tuberculosis in dairy cattle is due entirely to the factors which I have enumerated, viz.: overcrowding, absolutely inadequate ventilation, and want of sunlight and exercise. These are the very conditions which predispose to this disease in human

beings. How much more potent must these same factors be when applied to animals whose normal habitat is the open field. The wonder ought rather to be why so many cows escape the disease, rather than why so large a percentage are attacked. That tuberculosis is a common affection amongst dairy cattle is well known. Authorities vary greatly as to the proportion attacked, but all place it at a high figure. On the statement of Dr Parkes, I find that of 300 milk cows slaughtered in this city in 1890 on account of epidemic pleuro-pneumonia, 120 or 40 per cent. were found on post-mortem examination to be tuberculous (Parkes & Kenwood, "Manual of Public Health," 1902, p. 428). In London dairies the percentage is given as 25; in Yorkshire it is 25; in Durham 19 per cent., and so on. It may be taken for granted, therefore, that the proportion of milk cows suffering from tuberculosis of some of the internal organs varies from 20 to 40 per cent. Tuberculous disease of the udder is not so commonly met with in milk cows as one might imagine, Professor MacFadyean stating that only 2 per cent. of cows giving milk suffer from tuberculous mastitis. Other authorities place this at a much higher figure, as 4.8 per cent. It is asserted by some that only milk from cows suffering from tuberculous mastitis is liable to spread the disease to those who partake of it as a food. Nothing, however, can be further from the truth. Milk from cows which are the subjects of well-marked tuberculous disease of any of the internal organs only too frequently contains the specific organisms. Nay more, it has even been demonstrated that in animals which react to the tuberculin test, though there may be no indication of disease in the udder, tubercle bacilli may be present in the milk which they yield (Rabinowitsch, *Zeitschr. für Thiermed.*, Bd. viii. p. 202, 1904). It is, however, the milk from cows suffering from tuberculous mastitis which is so intensely infective, and hence it ought to be our supreme endeavour to eliminate such from the dairy. Other diseases which may affect human beings are derived from disease of the udder, for example, contagious mammitis in the cow may give rise through a streptococcal or staphylococcal infection to epidemic sore throat or to intestinal troubles in children, but as these are of much less importance they need not be discussed at present.

Tuberculosis in cows is a disease which has made an immense

advance during the past few decades, and this corresponds to the period during which prolonged detention of cows in cowsheds has been the custom. In dairy farms in the country, tuberculosis is not nearly so common a disease in cows as it is in city byres, and this is due to the fact that the animals live much more in the open air. That the disease is not, however, by any means absent from country dairies, is due to the detention of the animals in the byres for long periods during the winter or during the cold spells which are of so frequent occurrence in our country. The dairyman in the country often follows the same rules as are practised in towns; the cows are kept closely confined, and fresh air is excluded in order that the animal heat derived from the inmates may raise the temperature of the cow-shed, and so a larger amount of milk be obtained. In former times, when milk cows were kept entirely in the fields or meadows and milked there, tuberculosis was, I am assured by those who have experience, practically unknown.

I am fully convinced that tuberculosis, so frequently present in dairy cows, is due entirely to the insanitary and unnatural conditions under which they are kept. Consider the state of affairs; cows tied up in small stalls, from which they are never moved for months or even years; manure and urine allowed to lie and ferment in the shed for many hours; an excessive amount of moist heat, and the entire absence of anything like a sufficiency of fresh air. Such conditions of themselves would almost be sufficient to induce the disease. How much the more readily will the disease spread through a byre if there be one tuberculous animal present. Careful observers like Mr Riddoch (one of our own veterinary inspectors), Ravenel, and others, have frequently demonstrated the presence of tubercle bacilli in the matter expectorated on the walls of cowsheds by diseased cows. During the year 1903, bacilli were found in the expectorate of twenty-four cows in the byres of this city. From urine and fæces tubercle bacilli may also be disseminated into the air. In this manner a large proportion of the cows may be attacked, their disease-resisting power having already been greatly lowered through the long continued confinement in the insanitary cowsheds. Nor must we imagine that the animal will soon begin to show evidence of the disease. It is only after tuberculosis has

persisted for long and has made great advances that the animal begins to show emaciation. Up to an advanced stage of the disease the cow may appear fat and well nourished. Even a single visit to a slaughter-house will make one cognisant of the fact that very widespread disease may be present in an apparently healthy animal, and the unfortunate purchaser of such an animal has often to bewail the fact of the latency of the disease. As happens to many of the apparently cured inmates of consumptive sanatoria, the putting on of weight in the shape of fat does not by any means indicate the absence of tubercle from the organism. The present methods of preventing tuberculosis amongst ourselves consist very largely in a return to a more natural mode of existence, and this is also the means employed in the attempted cure of the disease. Less refinement in our modes of living are found to be those most conducive to healthy existence.

Such principles ought to guide us in the conduct of animals destined to furnish our milk supply. To my mind the great and increasing demand for cows' milk as a chief article of infant dietary is an evidence of retrograde civilisation. If a crusade were carried on against the rearing of infants on cows' milk, and were the immense advantages of maternal nursing insisted on, I am certain that the "health conscience" of the population would be aroused. If nature had decided that a milk of similar composition to that of the cow had been the best food for the infant, then we may be certain that such would have been elaborated in the female breast, or alternatively that the cow would have given birth to us, and not our maternal parent. Everyone knows that the healthiest babies are reared on the breast, and were this the custom now, as it was formerly, the need for keeping so many milch cows would to a great extent be done away with.

Much has lately been written on the physical deterioration of the people, and though the Inter-departmental Committee do not think that there is any general progressive deterioration, yet no one will gainsay the fact that the physique of the poor in cities is much below the average. May not this be a demonstration of the vast experiment which has been on trial during the past half century, *i.e.* the rearing of the infant population on cows' milk, which, after all, is to them an artificial food.

It is an interesting, though, perhaps, not a very comforting observation to examine the bottom of a pitcher after the milk has been poured out. Often the amount of solid impurity, which is actually mud, is remarkable. I have seen the same at the bottom of a jug, and to a less extent at the bottom of a tumbler. Even small quantities of milk will give such a deposit if centrifuged. The origin of this deposit is not far to seek. Cows are but seldom groomed, and thus their flanks and hindquarters are very often encrusted with their own fæces. The milkers, both men and maidens, are, I am sorry to say, only too often encrusted with the same material. As a class, milkers are not remarkable for cleanliness. The poetic or artistic idea of the milkmaid is not realised in fact. As a rule they are drawn from the agricultural classes, and so take with them to the occupation of dairy-keeping, their habits of the field or of the stable. Their mode of living also does not make for cleanliness. Roused from sleep at three or four o'clock in the morning, the man dons his trousers and boots, and the maid her petticoat and clogs, and both are then ready for the duty of milking. In winter mornings one can readily understand that cold ablutions would form an unwelcome addition to their grievances, which are already sufficiently real. In only too many instances the milkmaid remains even during the day in such a state of untidiness and dirtiness that if she were in a shop you would refuse to be served by her. If you look at their hands you may find the palmar surfaces clean, or if not so, they will soon become clean in the process of milking, whilst the dorsal surfaces may be ingrained with dirt. There is generally an entire absence from byres of any means for washing or drying the hands. In many cowsheds the employer makes use of male workers only, as they are easier to "handle," as it was rather quaintly remarked to me. While one may appreciate the superiority of the male sex generally, it cannot be said that the male is more cleanly than the female, and especially is this true in this connection. At one time he may be engaged in the filthy process of cleaning out the byre, and the next in milking the cows. In several of the city cowsheds a pretence is made of making the milkers wear a cotton covering to the front of the body and legs. Those which I have seen served at least the purpose of making the

dirtiness of their apparel more apparent. Unless such coverings are washed daily they are no better than ordinary clothing. Often the cow whisks her tail in the face of the milker, who then takes hold of it, and either ties it to the animal's leg, or tucks it under his or her arm, and without any washing of hands resumes the process of milking. In passing from one cow to another the milker often passes the hand over the animal's hide, so getting it soiled. I do not mean that the milkers are wilfully dirty, but it is not to be expected that people who have not been brought up to cleanly habits can without training assume them at once. By such methods of gathering the milk, dried particles of the cows' excreta, hairs, epithelial débris and organisms readily fall into the open pails into which the milk is received. The only treatment which the milk receives in any of our city byres is to pass it through a fine wire-gauze strainer. This keeps back the larger particles of solid impurity and hairs, if they happen to be caught in their longitudinal axis. A very large amount of adventitious matter, however, goes through such a strainer, and may be recognised as a deposit, while a still larger amount passes into solution. The opacity of milk prevents one from distinguishing such solid impurity suspended or deposited. Were one to see such in a glass of beer, wine, or even in harmless lemonade, it would be at once refused, whilst one drinks off a glass of filthy milk or gives it as a constant food to infants.

The manure from the cowsheds is in most cases stored only a few yards from the byre, and is usually left there for several days or until a sufficient quantity has accumulated to make it worth while to remove. The Edinburgh Regulation, 1893, states that dung must be removed twice daily from the byres, and from dungsteads once at least every fourteen days, or oftener if required. This manure, though highly malodorous, has not that intensely penetrating character of pigstye manure, and so it is not infrequently stored close to densely packed tenements. I cannot believe that organic gases given off from decomposing manure in confined yards or alleys are not hurtful to the health of the surrounding community, and from a purely sanitary point of view such accumulations ought not to be allowed. It is as true now as it was 2500 years before Christ, when the ancient Chaldean god of

infectious disease (Isum, the burner) was described as having been born in the gutter, and whose pleasure it was to go to and fro in these dirty streets.

These cowsheds are often situated in lanes or small squares closely surrounded by lofty and densely crowded tenements, or may even be hidden away behind fashionable quarters without the residents being aware of their existence.

It is satisfactory to know that the number of cowsheds in this city is less than it was some years ago, and that means are being taken to still further reduce their number. At the present rate of extinction, however, the process will be excessively slow (if indeed it be ever accomplished), as is shown by the fact that the regulations for insisting on 800 cubic feet for each cow in all new cattlesheds were passed in 1866, and yet at the present time the majority of the city byres allow but 600 cubic feet, as was allowed in cowsheds pre-existent at that date.

I do not hesitate to affirm that every one of those city cowsheds ought to be abolished, not that they are worse than those in the country, but because the health of the animals suffers from their being kept so long in confinement, and because of the impossibility of strict attention to cleanliness owing to the confined space in which these cowsheds have been erected. It is a perfect anomaly that cowsheds should exist in the centre of populous districts at the present time. Every dairy farm should be situated in the country, where one may see

> "Through the ample open door of the peaceful country barn,
> A sunlit pasture field with cattle and horses feeding,
> And haze and vista, and the far horizon fading away."
>
> WHITMAN.

I mean that in order that cows should live healthy lives and so yield healthy milk, they must be allowed to graze in meadows during the entire day, and should, if necessary, only be confined in freely ventilated and roomy sheds during the cold nights of winter. The yield of milk would under such circumstances be smaller than if the animals were housed in close, overheated byres, but surely the quality of the milk is of infinitely greater importance than the quantity. By such an open-air life the breed of cows would become stronger and the

predisposition to tuberculosis which is so marked a feature in cattle at present would die out. I do not deny that this disease occurs, though to a very small extent, in pasture-fed cattle. The tendency to the development of tuberculosis is a hereditarily transmitted one, and were we enabled to stamp out the disease in cows, its incidence in their progeny would vastly decrease.

As I have already said, every city cowshed is more or less cramped for space, and it will readily be understood that cleanliness cannot be so well carried out under such conditions as it can when there is abundance of light and space as may be obtained in the country. It is argued by some, and very foolishly, I think, that the longer that milk is kept the greater becomes the number of organisms in it, therefore it is better to have the cowsheds close at hand (as they are in towns), so that the milk may be obtained as soon as possible after it comes from the cow, and when it has relatively few organisms. This is a totally fallacious argument, however, for when cowsheds and cows are kept in a clean condition the number of bacteria per cubic centimetre of milk is comparatively low, and when the milk is immediately refrigerated these organisms are inhibited from growing for many hours. This elementary means of preserving milk is, so far as I know, in entire abeyance in the city byres of Edinburgh. It would materially make for the health of the community if every dairyman were compelled to have a refrigerating apparatus on his premises. The number of micro-organisms per cubic centimetre of freshly drawn milk in any one of our city byres varies from 50,000 up to millions. After such milk has been stored for a few hours without any precautions, many millions may be present. The mere proximity to a cowshed is thus of no avail in ensuring that we obtain a relatively pure milk.

On the other hand, milk from a well conducted dairy farm in the country contains only from 1000 to 30,000 bacteria per cubic centimetre. If such a milk be at once refrigerated and kept at a temperature below 50° F., the number will not undergo any appreciable increase during the first twenty-four hours. It stands to reason that the greater the degree of cleanliness observed in the cowsheds and cows, as well as in the storing and transport of the milk, the fewer will the

number of micro-organisms be in it. In other words, the cleaner the dairy, the cleaner the milk. In New York the standard for "certified milk" is that it must not contain above 30,000 bacteria per cubic centimetre, nor less than 3.5 per cent. of milk fat, and with an acidity less than 0.2 per cent. lactic acid.

We who criticise his methods must remember that the dairyman does not mean to be a public benefactor. He keeps cows to produce as large an amount of milk as possible; the larger the amount, the greater his gain. Consequently he keeps as many cows as he can (within legal limits), and for as long a period as each animal will yield an amount of milk which will return him a profit. In order to increase the quantity of milk, the cows are kept in as warm an atmosphere as possible during the winter, and this is produced not by artificial means of heating, but by confining in the byres the animal heat produced by the cows. Such a procedure is of course synonymous with great vitiation of the air, but at the same time a large yield of milk is obtained. Sympathy can hardly be withheld from the cowkeeper, who generally is a well-intentioned individual, who has little or no idea of what bacteria are or of their relation to the public health, and who looks upon all inspection and restriction as invasions of his rights. He is also often called upon to bear severe financial losses in the death or compulsory destruction of his stock. I wish to emphasise these facts, because the margin of profit in such undertakings never being very high, one can hardly wonder at the dairy-farmer not employing methods or machinery which will further add to the cost of production unless under compulsion.

The chief sources of contamination of milk reside in the cows, byres, milkers and utensils, and, though to a much less extent, in the distributing shops. The latter are, as a rule, well supervised by the urban authorities. A rule, however, ought to be framed, prohibiting the keeping of milk in open vessels in such shops, and also the use of the "dipper" to withdraw milk from pitchers. From the moment of milking, the milk should be kept in closed vessels, and when only small quantities are required they should be drawn off from sterilised churns by means of a stop-cock fixed at the bottom. It is illegal in this city to use any room as a sleeping room which

is in connection with the dairy. Previous to the passing of this bye-law in 1893, patients suffering from many of the infectious diseases were treated in rooms adjoining the shop where milk was sold and kept in open vessels. Such diseases as the following have come under my own observation and under similar circumstances:—Septic endometritis after abortion, acute rheumatism, phthisis, ulcerating carcinoma of mamma, enteric fever, ringworm, whitlow, diarrhœa, cancer of stomach, numerous cases of confinement, etc.

Are there any remedies for the present most unsatisfactory state of affairs? I feel sure that even were carefully drawn up laws enforced upon dairy-keepers, and their working seen to by large staffs of inspectors, it would not suffice. The only alternative would therefore seem to be to add this to the burdens of our municipal authorities and to ask them to look after our milk supply. It may seem a severe proposal to take away the livelihood of many hard-working people who have been doing their best according to their lights. The question of a pure milk supply is, however, so far-reaching in its effects that it ought not to be left to the mere enterprise of private individuals or even limited liability companies, who look simply to the profit to be obtained. I do not mean to say that a profit cannot be made even when every care is taken and every modern device introduced into the dairy. There are indeed many such dairy farms throughout our land which are above reproach and which yield a profit. Still, looking at the whole matter broadly, the milk supply ought to be controlled by the municipal authorities. Such control would be through regulations somewhat after the following:—

1. Total abolition of cowsheds within the city boundaries.

2. Having the dairy farms situated in the country—if necessary, miles from the city to be supplied. These milk farms ought not to be even near the outskirts of the towns, otherwise they soon become encroached on by building operations.

3. Careful veterinary inspection, so as to secure perfectly healthy cows.

4. Application of the tuberculin test to each cow at least every six months, even though this operation causes a diminution in the yield of milk from the animal for a few days. I

have already alluded to the fact that so far as I know this test is not applied in any of the city cowsheds. Tuberculosis in the cows is therefore only recognised when it attacks the udder (which it comparatively rarely does), or when cough or emaciation attracts the attention of the veterinary inspector.

5. The animals to be as much as possible pasture-fed, and when artificial feeding stuffs are required, a very careful selection must be made. Special care must be observed in changing from one kind of food to another. When the food has to be changed it ought to be done very gradually, otherwise the character of the milk is apt to vary, and this is hurtful to infants fed on such milk. In town dairies the cows are very often fed on the waste grain from breweries or on oilcake. If either of these be given in large amount the milk suffers in consequence.

6. The cows to be kept during the spring, summer and autumn practically entirely in the open air, with as little shed confinement as possible during inclement weather or winter.

7. Abundant air-space in the cowsheds, allowing to each animal 1000 to 1200 cubic feet of freely available air.

8. Thorough and constant ventilation of the cowshed applicable both in summer and winter. To each animal there ought to be given from 8000 to 10,000 cubic feet per hour. This amount must be determined by careful experiment and not by mere guessing. Frequent inspection would be necessary in order to see that there had been no interference with the inlets for fresh air. These are often closed by the dairyman in cold weather. It would be necessary to have a system of hot water heating for use during very cold periods.

9. The cowshed must be properly constructed as regards ample lighting, drainage, and the provision of an impermeable flooring. Proper means of artificial lighting must be introduced, as much of the work has to be performed during the hours of darkness.

10. Removal of manure and refuse from the byre at frequent intervals, not less often than twice in the twenty-four hours. It must not be stored close to the cowshed, as it only too frequently is, but at a considerable distance, so that flies, etc., may not be attracted near the byre.

11. Careful grooming of the cows at least once a day; this

must be combined with washing of the abdomen, flanks and udder. If this be not done, the excreta dries upon the hair and forms an excellent nidus for all kinds of germs. Pathogenic organisms may thus gain entrance to the milk.

12. Before milking, a clean waterproof covering with an opening through which the udder projects ought to be placed over the belly of the animal and fastened over the back.

13. An abundant supply of pure water must be laid on to the cowshed, and hand wash-basins with soap and towels must be provided.

14. The udder and teats of each cow and the hands of the milker must be carefully washed and dried before commencing the operation. The operator must see that the hands are not in any way soiled after he or she has commenced milking.

15. Each milker to attend carefully to personal cleanliness and to wear a linen or cotton overall which must be washed at least every second day. The milkers to concern themselves only with the milk and not to do any "dirty work." The grooming of the cattle and the removal of manure, etc., to be done by special servants.

16. The first small quantity of milk to be thrown away (foremilk), as it is always loaded with organisms.

17. The milk to be received into a covered pan provided with a small funnel opening.

18. The milk from each cow is to be at once strained through muslin or fine wire-gauze, and then carefully refrigerated. In very hot weather it might be necessary to store the milk over ice.

19. The milk cans and churns must be very carefully washed and sterilised by steam or boiling water before receiving fresh milk. Each must be provided with a closely fitting and padlocked lid.

20. The milk must be dispatched immediately after it has been refrigerated. It would be better to have a large number of small cans filled at the dairy and padlocked, and so sent to each customer. The "handling" of milk, that is, measuring it or passing it from one vessel to another, causes a rapid growth of bacteria in it. In the case of shops in the poorer districts of towns where small quantities are retailed or for selling milk on the streets, it should be brought into the town

in large sterilised churns fitted with a stopcock at the bottom. The milk can then be drawn off in small quantities as required without contamination of the supply.

21. Frequent medical inspection of the workers, so as to prevent the spread of infectious disease.

22. Frequent veterinary inspection of the cows, so as to eliminate those animals found unsuitable to give milk.

23. Frequent bacteriological examination of the milk. This is really of far greater importance than any chemical analysis. One may be defrauded in getting a watered milk, but the evils of the latter are infinitesimal as compared with the pathogenetic possibilities of an impure milk.

Such recommendations as the foregoing are not counsels of perfection, but are such as can be, or ought to be, easily carried out in every well-conducted dairy. Dairy farms such as I have described have in many cases been established. Some of these make use of the latest scientific improvements, and so are enabled to guarantee perfectly pure milk, while at the same time interest is returned on the capital invested (Aylesbury Dairy Co., Welford & Sons, The West Huntington Co., etc.).

Unfortunately the number of such high-class dairies is out of all proportion to the needs of the community, and a sufficient number of enlightened individuals has not yet arisen to establish such dairies generally. I am unable to see any other way out of the difficulty except that the control of dairy farms must pass into the hands of the municipal authorities, for it is impossible that the present methods of obtaining our milk supply should be allowed to continue.

The institution of central creameries to deal with milk brought from surrounding hamlets and crofters' dwellings, as is largely carried on in Ireland, seems to me to be a backward movement. I have examined the milk brought to such creameries, and have found it in very many cases filthy in the extreme. When one considers the exceedingly dirty habits of the Irish peasantry and the condition and situation of the byre, if such it can with courtesy be called, it is evident that milk obtained under such conditions is quite unsuited for the purpose of yielding cream or of being made into butter. Doubt-

less it is of great importance to the peasantry to obtain a ready sale and a fair price for the milk, as well as to get the skimmed milk returned for feeding their pigs, but sanitary measures for the public health are surely of greater importance than even a partial solution of Irish grievances.

It is only by enlisting public opinion on our side, and perhaps the private practitioner can exercise greater authority in this direction than any one else, that I have brought this most important matter under the notice of this influential society.

Until the happy consummation of obtaining a pure milk supply be attained, what ought our duties to be?

1. Encouraging, nay, insisting on each mother doing her simple duty to her offspring by feeding with her own milk.

> "It is twice bless'd;
> It blesseth her that gives and him that takes";

and especially is this true in this regard. Gynæcologists tell us that the many cases of subinvolution of the uterus, endometritis, etc., which develop post-partum, are very largely due to the want of uterine stimulation normally attained through lactation. There ought to be no so-called scientific rearing of infants. The process of rearing a child must be natural, and all other artificial methods must of necessity be fraught with danger. Could anything be more ridiculous than such a statement made by one of the leading authorities on children and on the methods of feeding them: "There is nothing ideal about breast milk, . . . we must look upon human milk as a varying food." He goes on to state, however, that it is the best which has been found for the infant up to the present time, and he then proceeds to explain the manufacture of mixtures made up of cows' milk to represent human milk. In America, where this method of percentage feeding of infants is much more commonly practised than it is either in this country or on the Continent, statistics show that there is a much greater prevalence of scurvy and anæmia in infants than there is in Great Britain, and infinitely more than there is in France.

I am not at all sure that the practice of giving donations of money to mothers who have nursed their own children would prove of much avail in our country. The gift would

require to be relatively large to tempt them, and such donations would not likely be forthcoming. Such bribes have, however, been found useful in France. Professor Hergott, of Nancy, during many years gave a sum of money to every mother who had suckled her infant for the first month, this being the most important period in the child's life. Professor Budin of Paris also does his utmost to encourage maternal nursing, and gives grants of money to women who have recently been confined.

During 1903, 60 per cent. of infants who were brought to the Consultation de Nourissons at the Clinique Tarnier were fed entirely on the breast, while only 5 per cent. were brought up on the bottle, and 35 per cent. received both breast and also sterilised cow milk in the case of the mothers whose lacteal secretion was insufficient. It is by no means infrequent to find in this institution 85 per cent. of the infants breast-fed. At the present time there are twenty-six similar institutions in Paris.

Throughout France generally the establishment of *Gouttes de Lait* has done much to encourage the practice of maternal lactation. Only in those cases where the children are manifestly underfed by the poorness of the mother's milk is the supply augmented by pasteurised cow milk. These *Gouttes* have been established in upwards of twenty towns in France.

Following the example of the French, the Mayor of Huddersfield only last November formulated a scheme by which every mother or nurse who brings a healthy breast or bottle-fed baby twelve months after birth is to receive from him a gift of twenty shillings. This is done with the object of stimulating maternal lactation. Immediately after the birth of a child, a band of lady distributors hand to each mother a card containing simple rules for the upbringing of the infant.

Though tending in the right direction, it may be feared that the training of girls above the age of 14 in the feeding and management of infants as recommended by the Physical Deterioration Committee will not prove of much value. In my experience it is very difficult to teach girls of this age, and besides this, the feeding of the infant on the breast is a natural process, and the mother does not require any teaching to make her proficient in the art of suckling.

If, however, our counsels be unheeded, or if from any cause the normal maternal function be not exercised, then, and until we obtain a pure milk supply in the way I have indicated, we must endeavour to make cows' milk as presently produced as innocuous as possible. The most ready method is by—

2. Pasteurisation of the milk. This can readily be done by the well-to-do or by the careful poor. The total amount required during the day by infants, children and adults may be pasteurised in the morning. The milk must be heated in a closed vessel to prevent the formation of the usual pellicle which tends to prevent the destruction of the tubercle bacillus, and the heat must be maintained at 140° F. for twenty minutes at least. In this way the numerous "dairy bacteria," or those which produce lactic acid, are readily killed, as well as most of the other pathogenic organisms. After being heated, the milk must be rapidly cooled, so as to ensure the destruction of the organisms. I fear that the latter part of the procedure is usually neglected, and yet it is quite as essential as the prolonged heating.

As domestic pasteurisation is out of the question amongst the majority of the poor, the institution by the municipality of pasteurised, sterilised, or prepared milk depôts is, I consider, a necessity at present. The energetic Medical Officer of Health of Leith, Dr Robertson, has for some time carried on such a method of distribution with excellent results. Milk depôts have also been instituted in several other cities and towns, as, for example, Liverpool, Bradford, St Helens, etc. For some years past the free distribution of pasteurised milk has been largely practised in New York through the generosity of a certain wealthy donor, and the result has been most gratifying in respect to the preservation of infant life. Within ten years the death-rate of children under five years in New York has fallen to exactly one-half of what it was formerly. That this result is due to the use of pure milk is proved by the fact that this lessening in the mortality has been characteristic of the poor localities where the milk is distributed. Similar institutions have been started in many Continental towns.

It is asserted by some that the constant use of pasteurised

or sterilised milk forms an important factor in the production of infantile scurvy, purpura and rickets. On the other hand, this is denied entirely by other observers ; while a third group takes a middle course, and affirm that if scurvy and rickets do appear, these affections are due to the too prolonged pasteurisation or sterilisation of the milk. This points to the fact that, in order to make public milk depôts of absolute value, they must be under the direction of medical men, who would every week see each infant and weigh it, and so note whether the milk so prepared were suitable to the infant or not. Even if one grants that scurvy and other dietetic diseases may be produced by prepared milk, yet surely they are very minor evils when contrasted with the production of tuberculosis or other infectious diseases caused by untreated milk.

I have already alluded to the great mortality in infants and children due to the ingestion of milk commencing to decompose, and any way in which this might be abated ought to be welcomed. While I as firmly as any one deprecate the unnecessary use of preservatives in our food, yet I cannot see where the great objection to the employment of harmless antiseptics lies when they are used with caution. It is just because they are prohibited that they are so often added without proper care. A small proportion of boracic acid will preserve cream for many days, and yet no taste will be apparent ; yet I have partaken of cream quite salt to taste through the immoderate use of this antiseptic. If the Legislature were to allow the addition of small yet adequate amounts of antiseptics to certain articles of food which are apt to decompose, no harm would result to any one, but rather the reverse. Who would eat tinned peas if they were yellow, and yet it is an offence to add one or two grains of copper sulphate. Formalin in the infinitesimal proportion of 1 part to 50,000 parts of milk has been proved by such authorities as Behring, Tunniclife and Rideal to be absolutely effectual as a preservative. I do not believe that any antiseptic, when used in the minimal but yet efficient amount, can have any deleterious effect, and it would be much better, I think, that rules for the proper proportions of antiseptics should be formulated, than that it should be a penal offence to add them to easily decomposable food. While the present conditions of our milk supply continue, and until the general insti-

tution of prepared milk depôts in towns, it would be only proper that during the warm months of the year certain definite amounts of antiseptic substances should be added, so as to prevent the onset of diarrhœal diseases.

Amongst the wealthy, asses' milk might be much more largely employed as an artificial food for infants. These animals are not subject to tuberculous diseases, and their milk bears a much closer resemblance to human milk than does that of the cow. Albumin is present to a large extent in asses milk, while there is a minimum of casein. This results in the formation of a soft, flaky coagulum, similar to what occurs in human milk, as contrasted with the firm curd of cows' milk. At present the expense of asses' milk militates against its use. Asses are, however, much cheaper to buy than are milch cows, and if larger herds of asses were kept, the cost of their milk would be greatly reduced.

Goats' milk has also much to recommend it. There is no reason why, in the case of small towns and villages, we should not copy the methods of many of our Continental friends. Amongst them it is a common practice to drive cows and goats through the streets, and milk them at the doors of the customers.

As I wish to confine myself entirely to our milk supply, I shall say nothing in reference to the use of sterilised condensed milks, and it is as yet too early to express any opinion regarding the employment of dried milk, as, for example, that manufactured by the Just-Hatmaker process, although it would seem to fulfil many requirements.

My object will not have been gained if this Society has merely listened to the communication. I do most certainly think that a committee of medical men and of others whose advice and experience would be valuable should be formed to thoroughly investigate the conditions of our milk as presently supplied. Such a committee was formed in New York a few years ago, and the milk dealers were asked to co-operate. At first the latter body was unable to produce milk up to the standard deemed necessary for "certified milk," viz., bacteria not to exceed 30,000 per cubic centimetre, acidity not to be over 0.2 per cent., and butter-fat not to be under 3.5 per cent. Gradually, however, as they were instructed in proper methods of dealing with cows and milk, the quality improved, and soon an abun-

dance of certified milk was obtainable. What has been done in New York, Copenhagen, and in other cities, could much more easily be done in a smaller town, such as the one we inhabit. Here the municipalisation of the dairies could be very easily carried through. If, however, the public authorities should unfortunately not see their way to undertake the provision of pure milk, then we might surely have a supply certified by medical and veterinary men to be pure and wholesome. There are a few dairies supplying milk to the city which profess to supply certified milk, but they are under no sufficient supervision.

In view of what I have stated as to the methods of obtaining pure milk, I do not think that the institution of milk laboratories, after the model of the American (Walker Gordon) ones, is necessary for this country.

My desire is that this communication may furnish a profitable discussion, and that this may lead to some practical issue.

A CONTRIBUTION TO THE HISTOLOGY AND GENEALOGY OF HÆMOPHILIA[1]

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I.—Clinical and Histological Notes of a Case of Hæmophilia.

A BOY, aged 14, was admitted to the Royal Infirmary, under the charge of Dr James, on November 23rd, 1904, complaining of epistaxis of three weeks' duration.

History.—Patient's maternal grandmother was plethoric, and frequently had epistaxis. Maternal grandfather was healthy. Nothing is known regarding his paternal grandparents. Both parents are alive. The father, when a boy,

[1] The expenses in connection with this paper were defrayed by a grant from the Carnegie Trust.

suffered from bleeding at the nose, and had great difficulty in getting bleeding from cuts and scratches to stop. He suffered most severely about the age of 15, but since reaching the age of 24 he has had no further symptoms. He is now 53. The mother is a healthy, plethoric-looking woman of 53. She says she has had severe floodings at her confinements, and sometimes bleeds at the nose. Her family is as follows:—

1. A still-born baby.
2. Male, aged 24, healthy.
3. Female, aged 22, chlorotic.
4. Male, aged 20, suffers from severe epistaxis at frequent intervals.
5. Male, aged 2, died of convulsions.
6. Female, aged 8½ months, died of convulsions.
7. Male, aged 14, died of hæmophilia (present case).
8. Male, aged 13, plethoric, has occasional epistaxis.

Previous Illnesses.—Patient cut his forehead with a bottle, and again cut his knee when he was 10, but on neither occasion was there any difficulty in arresting the hæmorrhage.

When he was 12 he began to suffer from epistaxis.

Present Illness.—Epistaxis began on November 1st. It was treated for ten days at home, and then patient was admitted to the Ear and Throat Department of the Infirmary. In spite of local applications, the bleeding continued at intervals, and a fortnight later patient was transferred to Ward 31.

State on Admission.—Patient looked well-nourished, but was markedly anæmic. Temperature, 98° F. Lips and gums very pale. Tongue furred. Teeth good. Bowels regular. No enlargement of the spleen or lymphatic glands. Hæmic murmurs could be heard all over the heart. Pulse, 116 per minute, regular in time and force. Volume small. Tension very low. There were no petechial hæmorrhages. Urine pale, sp. gr. 1025, acid, contained no abnormal constituent. There were no retinal hæmorrhages.

Course.—The bleeding from the nose continued at intervals. Styptic applications and plugging did not seem to be of much avail. Blaud's capsules were administered internally. Patient rapidly became weaker, and sickness supervened, making it

impossible to give remedies by the mouth. Temperature rose a little each night, but was never above 100° F. As a last resort, on December 10th, transfusion of salt solution was tried, but death occurred on the morning of December 11th.

Blood Examination.

	Red cells.	Hb.	White cells.
Nov. 22nd, .	560,000	22	7000
„ 23rd, .	675,000	24	4063
„ 24th, .	680,000	24	6250
Dec. 2nd, .	595,000	18	4000
„ 9th, .	295,000	12	4400
„ 10th, .	300,000	—	—

The coagulation time was roughly estimated on several occasions by stroking a drop of blood kept on a slide at room temperature with a needle. Usually half an hour elapsed before a thread of fibrin was drawn out, but on December 9th, fifty minutes elapsed before any fibrin formation occurred.

On December 9th, the blood looked pale and watery. Rouleau formation seemed slightly impaired. The red cells were pale, but showed only a slight degree of poikilocytosis. There was no polychromatophilia. The leucocytes did not give the glycogen reaction.

Differential counts were as follows:—Polymorphs, 64; large lymphocytes, 2; small lymphocytes, 32; transitionals, 2; eosinophils, 0; myelocytes, 0.

Five normoblasts were seen in counting 500 leucocytes.

On December 10th, immediately after transfusion, the differential counts in the above order were 66, 4, 27, 2.5, 0, 0. Two megaloblasts and eight normoblasts were seen in counting 500 leucocytes.

On December 11th, just before death, the films showed much more poikilocytosis. Differential counts gave percentages of 41, 19.5, 39, 0, 0, .5.

Fifteen megaloblasts and forty normoblasts were seen in counting 500 leucocytes.

A *Sectio* was made on December 12th by Dr Stuart M'Donald.

All the tissues and organs were exceedingly pale. The

heart contained some loose red clot, was extremely fatty, and showed some petechiæ, especially on the anterior surface of the right ventricle. No other hæmorrhages were found.

The liver gave the free iron reaction with potassium ferrocyanide and hydrochloric acid.

The spleen was small and firm.

The intestine showed a dark slatey-grey coloration, and throughout the mesentery were little reddish points, evidently small hæmolymph glands, and there were a few old calcareous tubercular glands.

The bone-marrow of the femur showed red transformation extending from the extremities, but the central part of the shaft contained ordinary yellow marrow.

The brain was anæmic, but showed no other change.

Some Observations on the Blood.

A sample of blood was obtained from the femoral vein about thirty hours after death. There was no coagulation.

(*a*) A column of blood measuring 5.5 cm. in a test tube of 1 cm. diameter yielded only 1 cm. of corpuscles when centrifuged. This tube was allowed to stand at room temperature, and about four hours after the blood had been removed from the body a loose coagulum formed from the surface of the fluid down to the level of the corpuscles.

(*b*) Some of the fluid was pipetted off. The addition of a drop of healthy blood to it caused no further coagulation, but merely formed a small clot by itself at the foot of the tube. Healthy corpuscles were very little altered by treatment with the hæmophilic serum.

(*c*) A specimen of healthy blood was found by Wright's coagulometer to coagulate in five minutes. By means of the leucocyte-counting pipette, 1 part of hæmophilic serum was added to 4 parts of this healthy blood. The mixture of blood and serum was found to coagulate in five minutes, as the healthy blood alone had done.

Histological Examination.

Parts of the organs were preserved in formal-alcohol, to which a few corrosive crystals had been added. Sections were

cut in paraffin and stained with eosine and methylene blue, and (for iron) with ferrocyanide of potassium and hydrochloric acid, with carm-alum as a counter-stain.

Stomach.—Showed no change. Both kinds of glandular cells were well preserved. The sub-mucosa was rich in lymphoid tissue. Iron absent.

Small Intestine.—Villi desquamated. Epithelium at fundus of glands well preserved. Great invasion of mucosa with micro-organisms. There were numerous basophils in the sub-mucosa.

Liver.—Very bloodless, marked fatty degeneration.

Capillaries considerably dilated, but did not contain any abnormal cells. A moderate amount of granular pigment, all of which gave the iron reaction, was seen in the liver cells towards the periphery of the lobules.

Pancreas.—Healthy.

Heart.—Muscle fibres showed marked fatty degeneration.

Lungs.—Slight catarrhal change in the air vesicles.

Kidneys.—Practically healthy. No pigmentary change.

Supra-renal Bodies.—Healthy.

Spleen.—Malpighian bodies well marked, but very few cells showed mitosis. Pulp very bloodless. It contained mainly lymphocytes, but also a few granular cells and a few normoblasts. Scattered throughout the pulp there were large rounded masses of pigment, some as large as an erythrocyte, singly or in aggregations, mostly contained in endothelial cells.

Lymph Glands.—Showed no change. Germ centres not active.

Hæmolymph Glands.—In the blood sinuses were some large cells containing pigment. Only a very small proportion of the pigment gave the iron reaction. The small red bodies in the mesentery proved to be hæmolymph glands.

Thymus.—The lymphoid tissue was encroached on by fat to such an extent as to almost obliterate the lobular arrangement. The lymphoid tissue was fairly uniform, and did not show any packing of cells at the periphery of the lobules.

The Hassall's corpuscles were very numerous and in some cases enormously large. They consisted almost entirely of degenerated epithelial cells, which did not show any concentric

arrangement. In one or two cases the epithelial cells were remarkably distinct and showed no regeneration.

Bone-Marrow.—Both sections and films were examined. The fat was not very greatly encroached on. The most numerous cells were lymphocytes. There were also a few myelocytes, some with eosinophil granules. A few basophils were seen. Red cells were few. Many of those present were normoblasts. A very few atypical megaloblasts were noticed. Giant cells were few and small. A few large cells acting as phagocytes to red corpuscles were seen. There was no pigment.

Sections taken from the extremity of the shaft of the femur only differed from those taken nearer the middle of the bone in the extent to which the fat was encroached on. No difference could be detected in films taken from the two situations.

Vessels.—Sections of the aorta, saphenous vein, and a small artery running beside it were made. The vessels in the fat around lymph glands and in the organs were carefully examined, but no abnormality could be detected.

The capillaries seemed healthy, and the dermis contained the usual amount of elastic tissue.

In this case the tendency seems to have been inherited from the father. The mother, a plethoric-looking woman, cannot be regarded as a true bleeder. The tendency seems also to have been transmitted to two brothers.

The only special features about the symptoms were the persistent epistaxis, and the remarkable absence of any great change in the blood beyond the length of coagulation time and the anæmia until the patient became moribund. The blood after death showed a very great delay in coagulation, but the coagulum that eventually formed seemed to be in about normal amount. It is a matter of regret that I had not the opportunity of trying to artificially hasten the process by the addition of healthy blood, etc. The more important post-mortem appearances were an exhausted bone-marrow showing slight phagocytosis of red cells, the presence of iron pigment in the liver and spleen and the large Hassall's corpuscles in the thymus.

The thymus presented appearances that would probably have been normal in a younger child. No great importance need therefore be attached to the changes found.

The phagocytosis of red cells and the presence of iron pig-

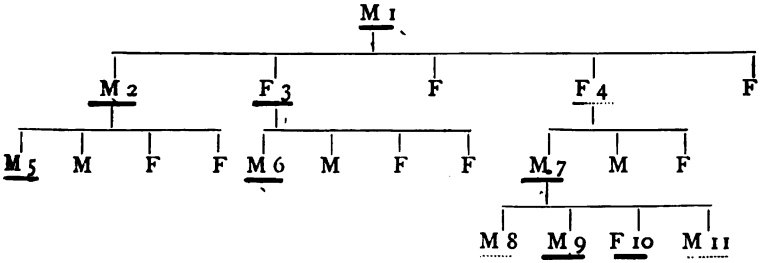
ment in the liver and spleen are probably to be accounted for by the vulnerability of the red corpuscles produced by an exhausted marrow. All the evidence to be derived from this case goes to indicate that the essential pathology of hæmophilia consists in a delayed coagulability of the blood and not in any anatomical peculiarity of vessels or tissues.

I am indebted to Dr James for permission to make use of this case, and to his house-physicians for some of the earlier blood-counts.

II.—A Hæmophilic Genealogy.

The following remarkable genealogy has recently come to my knowledge.

The males are denoted by the letter "M"; the females by "F." The letters are underlined in the case of the bleeders. The dotted lines indicate a slight tendency to hæmophilia. The numbers are for reference.



In all probability the tendency existed further back than the four generations indicated, but the evidence available is merely legendary. All the cases are direct descendants of the original great-grandfather, M 1, and in no case was there intermarriage with another hæmophilic stock.

In spite of suffering severely all his life from epistaxis and other forms of hæmorrhage, M 1 lived till well over 80.

M 6 died of hæmorrhage. M 7 suffered severely from hæmorrhages when a boy, but outgrew the tendency.

His three sons in early life showed the tendency in a minor degree, while the daughter (F 10) has on several occasions suffered to a dangerous extent from hæmorrhages.

I have recently examined the blood in the case of M 11, aged 22. Nothing abnormal was found. Coagulation time,

tested at blood heat with Wright's apparatus, was found to be just over four minutes. Red blood corpuscles numbered 5,360,000 and white cells 6800 per c.mm. Polymorphs were 71, lymphocytes 27, and eosinophils 2 per cent.

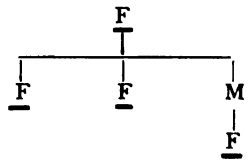
III.—Some Recently Published Genealogies.

Hæmophilia is stated to be a hereditary disease usually affecting males, but transmitted through the female line. This is well illustrated in the work of Grandidier (1) and Legg (2). The foregoing cases, however, are examples of transmission through the male line, and in the fourth generation of the second family we find a striking reversal of the usual incidence, viz., transmission through the male and the disease showing most markedly in the female.

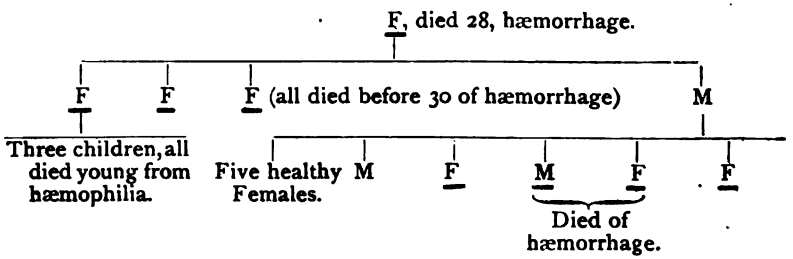
I find that a departure from the classical description as regards sex and heredity is a feature of some of the cases recorded during the last eighteen months.

Ferrier (3) mentions two cases in females, but gives no details regarding their history.

Blaker (4) describes a case in a female child of eleven months where the tendency was transmitted from patient's paternal grandmother, a bleeder, to two aunts, but the child's father did not show symptoms.



Pearson (5) records a remarkable instance of the condition affecting the female members of a family, and showing transmission through the male line.



On the other hand, cases in accord with the usual heredity are recorded by Abderhalden (6) and Faludi (7), though the mother in the case of the latter suffered from epistaxis. Grant (8) also records a case which presumably comes under this category, as he states that the boy came of a family of bleeders, and was treated with ovarian extract, on the ground of the rarity of the condition in females.

A case is recorded by Monsarratt (9) in which there was no family history of the condition at all. This case was a boy, aged 8, who fractured his femur, but a good result followed in spite of enormous effusion at the seat of the injury.

IV.—Some Recent Views on Pathology.

The views that have been expressed regarding the pathology of hæmophilia are very diverse.

Ferrier (3) considers the condition to be due to a decalcification of the blood along with the teeth, etc., associated with phosphaturia, due to such conditions as hyperchlorhydria and excess of acid diet, and obtained good results by giving calcium.

Wallis (10) has also described cases of hæmophilia in whom extraction of teeth became a safe operation after the use of calcium chloride.

Wright (11) found that he could reduce the coagulation time not only in a hæmophilic, but also in healthy persons, by the use of this substance, and Shäfer (12) has recommended its addition to suprarenal substance in styptic lotions.

On the other hand, good results have not always followed its exhibition, and Legg (13) states that he has never seen anything like complete disappearance of symptoms even after a prolonged course of it.

Abderhalden (6) found that wounds of the skin did not bleed excessively in his case, while wounds of mucous membrane did so, and concludes that hæmophilia is due to disease of the small vessels and capillaries.

Geyer (14) found an enormous number of nucleated red cells in one case, and considers that clotting is prevented by the degeneration products of such cells, but thinks that thinness of vessel walls, their inability to retract, their want of muscle

fibres and the scarcity of elastic fibres in the skin are all factors of importance!

Faludi (7), in the case of a boy of 6, could find no anatomical ground to explain the condition.

V.—Conclusions.

From these notes the following conclusions may be drawn:—

1. Hereditary transmission is a striking feature in nearly every case.

2. Although hæmophilia is more common in males, it is not so infrequent in females as is generally stated.

3. A large proportion of the more recently recorded cases have been transmitted through the male line.

4. The condition is not due to any anatomical peculiarity of vessels or tissues demonstrable by present methods.

5. The essential pathology seems to consist in a greatly delayed coagulability of the blood which progresses with progressing anæmia.

6. There is reason to believe that calcium chloride may be of service, but its use is likely to be limited in severe cases by the irritability of the stomach and its nauseous taste.

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Births and Deaths registered in Eight of the Principal Towns of Scotland during December 1904

DURING the month of December 1904, there were registered in the towns of Glasgow, Edinburgh, Dundee, Aberdeen, Paisley, Leith, Greenock and Perth, the births of 3954 living children, of whom 2006 were male and 1948 female. These births are equivalent to an annual birth-rate of 27 per thousand of the estimated population of these towns. The equivalent annual birth-rate in Glasgow was 29.4; in Paisley, 28.4; in Aberdeen, 28.2; in Leith, 28.1; in Greenock, 26.9; in Dundee, 25.1; in Edinburgh, 21.5; and in Perth, 20.5. The births registered in these towns are 105 more than in the previous month, but 324 fewer than in December 1903.

Of the total births, 3678 were legitimate, and 276, or 7 per cent., were illegitimate. The illegitimate rate was highest for the month in Perth, 11.9, and lowest in Greenock, 3.1. In Aberdeen it was 9.4; in Edinburgh, 8.6; in Glasgow, 6.9; in Dundee, 5.5; in Leith, 4.8; and in Paisley, 4.4.

Deaths registered in these towns during the month numbered 3052, which is equivalent to an annual death-rate of 20.8 per thousand of the population. This rate is 2.4 more than that for the previous month, but 0.6 less than the rate for December 1903. The death-rate for the month was highest in Glasgow, 23.8; and lowest in Leith, 15.1. In Aberdeen it was 21.2; in Paisley, 19.6; in Perth, 19.5; in Greenock, 18.6; in Dundee, 18.3; and in Edinburgh, 17.1. The death-rate for this month was higher than in the previous month in each of the eight towns, Dundee excepted, where the rate was slightly lower than in the previous month.

Of the 3052 deaths registered during the month, 1132, or 37.1 per cent., were of children of under five years old; and 777, or 25.5 per cent., were of persons of over sixty. Deaths of children of under five numbered 72 more than in the previous month, and 5 more than in December 1903. Deaths of persons of over sixty numbered 161 more than in the previous month, and 15 more than in December 1903.

Deaths of children of under one year old numbered 681; this is 1 fewer than in the previous month, and is equivalent to an infantile mortality of 158 per thousand births. This rate was highest in Glasgow, 182, and lowest in Edinburgh, 112. In Greenock it was 172; in Paisley, 162; in Dundee, 141; in Aberdeen, 139; in Leith and in Perth, 129. In Aberdeen, Leith, Greenock, and Perth this rate was higher than in the

previous month, while in Glasgow, Edinburgh, Dundee, and Paisley it was lower than in the previous month.

The principal epidemic diseases during the month were the cause of 311 deaths; this is equivalent to an annual death-rate from these causes of 2.1 per thousand. Deaths from these causes were 108 more than in the previous month, and 41 more than in December 1903. The death-rate from these causes ranged from 4.1 in Aberdeen to 0.7 in Paisley and Greenock. In Glasgow it was 2.8; in Perth, 2.4; in Leith, 1.8; while in Edinburgh and Dundee it was 0.9.

There were no deaths in these towns from small-pox. Deaths from measles numbered 71; this is 36 more than in the previous month; of the 71 cases, 44 occurred in Aberdeen, they were the cause of the high death-rate from infectious diseases recorded in that town. Deaths from scarlet fever numbered 7, which is 2 more than in the previous month; deaths from diphtheria numbered 20, or 3 fewer than in the previous month; from hooping-cough 155, or 62 more than in the previous month; of them 122 were in Glasgow, which is nearly twice as many as were recorded in the previous month. Deaths from fevers numbered 19; of them 18 were due to enteric fever, and 1 to typhus fever. Deaths from diarrhœas numbered 39; this is 1 more than in the previous month.

Deaths from influenza numbered 27; this is 19 more than in the previous month, but 5 fewer than in December 1903.

Deaths from puerperal septic conditions numbered 9; from malignant disease, 127, of which 62 were ascribed to carcinoma, 13 to sarcoma, and 52 to cancers not otherwise described. Deaths from heart disease numbered 257; from apoplexies, 146; from premature birth debility, 76; and from alcoholism, 7.

Deaths from pneumonia numbered 415, and constituted 13.6 per cent. of the total deaths; while those from bronchitis numbered 369, and constituted 12.1 per cent. of the total deaths. Deaths from pneumonia were 36 more than in the previous month, and from bronchitis 73 more.

Deaths from phthisis numbered 229, and constituted 7.5 per cent. of the total deaths; they were 13 more than in the previous month.

To violent causes 97 deaths were ascribed during the month; of them 5 were suicidal. Of the suicidal deaths, 2 were by cut throat, and 1 each by drowning, by precipitation, and by "injury to head."

Of persons dying during the month, 2 males and 9 females were aged 90 years or upwards, the oldest of whom were two widows each aged 95 years.

The Meteorological Returns for Eight of the Principal Towns in Scotland for the Month of December 1904

Mean barometric pressure, 29.788 inches; less than the average for the same month of 1856-1900 by 0.013 inch.
Mean temperature, 39°.3; greater by 0°.7.
Mean daily range of temperature, 8°.9; less by 0°.3.
Mean humidity, 88 per cent.; greater by 1 per cent.
Rain, number of days, 17; being the average.
Rain, depth in inches, 3.10; less by 0.69 inch.
Wind, force (on scale of 0-12), 2.1; less by 0.7.
Wind, direction of: a 1 day's excess of winds from W.

HENCE the month of December 1904 was characterised by a slightly low mean barometric pressure; a slightly high mean temperature, with a fractionally low mean daily range; a rather low mean rainfall, with the average number of rainy days; a slight excess of moderate winds from a W. quarter.

The mean barometric pressure was 29.788 inches, or 0.013 below the normal. A fall of fully three-quarters of an inch on 11th and 12th gave lowest readings for the month on the latter day, whilst considerable disturbances occurred also on 4th and 29th. From 18th to 28th the barometer at Leith at sea-level remained above 30 inches, the extremes there being 30.557 inches on 19th, and 28.870 inches on 12th.

The mean temperature was 39°.3, or 0°.7 above the normal, the days being 0°.5 and the nights 0°.8 above their respective averages. Aberdeen and Perth were slightly below their averages, but the other towns above, the excess at Edinburgh, Glasgow, and Paisley being full 1°.0. From 7th to 14th there was a spell of exceedingly cold weather, with lowest temperatures on the 11th, on which day the maximum at Perth rose only to 26°.5. The weather was somewhat cold also about 19th and 27th, whilst on 4th and 5th, on 16th and 17th, and on 29th and 30th, high temperatures were experienced. The absolute maximum for the chief towns was 57°.3 at Leith on 17th, and the minimum 11°.0 at Perth on 11th.

The mean rainfall was 3.10 inches, or 19 per cent. below the normal. There was a trifling excess in the Edinburgh district, but a defect at the western and more northerly towns, Dundee having a shortage of 33 per cent. The greater part of the precipitation occurred on 4th, 6th, 9th, 11th, and 12th, and, in the West, from 13th to 17th. The greatest daily amount was 0.93 inch at Greenock on 16th, whilst at Edinburgh half the total for the month was registered on 11th and 12th. From

18th to 27th practically no rain fell at the majority of the towns, though Dundee reported 0.22 inch on 25th.

The weather was stormy on 4th, 5th, 16th, and on the night of the 29th, the first half of the month being very unsettled.

From 8th to 12th a severe snowstorm was general over the country, whilst from 20th to 27th much fog occurred in more southerly districts.

Thunder was reported at Paisley on morning of 30th.

Meetings of Societies

Edinburgh Medico-Chirurgical Society

THE fourth meeting of the session was held on the 18th of January—Professor John Chiene, C.B., President, in the chair.

Dr Allan Jamieson exhibited: (1) a case of psoriasis, illustrating the effect of oxydised pyrogallic acid in treatment; (2) two cases of lupus treated by the X-rays, after a prolonged period of rest.

Dr Chalmers Watson gave a microscopic demonstration to show the changes induced in the thyroid gland of animals by a meat diet.

Dr Aitchison Robertson read a paper, illustrated by a lantern demonstration, on the milk supply of Edinburgh, with suggestions for its more stringent control. The paper appears in the *Journal* on page 105.

The President, in opening the discussion on the paper, said the milk supply of Edinburgh had interested him for many years. If the reforms suggested by Dr Aitchison Robertson were carried out, he feared the cost of milk would be quadrupled.

Dr Melville Dunlop said the subject of our milk supply was one of great importance. He desired to endorse Dr Aitchison Robertson's suggestion that a committee be appointed to investigate the conditions of our local milk supply, and to bring the conclusions before the responsible authorities.

Dr Harvey Littlejohn said the authorities can only enforce existing laws, and reform is not to be sought in the action of the municipal authorities. It is by public opinion that the dairyman must be compelled to provide clean milk.

Dr James Carmichael was of opinion that the medical profession should educate the public as to the importance of clean milk. We are all agreed as to the advantages resulting

from mothers nursing their children; but all mothers cannot nurse their children, and in these cases the mother should be given careful instructions how to carry out artificial feeding. Sterilisation of milk is not to be recommended, whereas pasteurisation is not only good, but essential.

Dr William Robertson said, in regard to the President's remarks, he knew of a dairy which had adopted modern methods, and the milk from that dairy was sold at ordinary market prices.

Dr Harry Rainy read a paper on the nature of Friedreich's ataxia. Having described the leading symptoms of the disease and its clinical congeners, he gave an account of the anatomical lesions previously recorded in the literature, and of the lesions he had found in a case previously under the care of Dr Mackie White. The conclusions which these observations appeared to warrant were —

1. The nature of the degeneration is uniform.
2. The distribution of the degeneration (as observed in the posterior columns) indicates that the lesion follows the course of the individual nerve roots.
3. The primary lesion seems to be a premature disappearance of the nerve elements, either from deficient longevity or from some developmental defect, perhaps associated with imperfect myelin production.
4. The degenerated nerve elements are replaced by interstitial tissue, which by degrees cicatrises, forming at first whorls, and later a felted mass of fibres. This process may gradually encroach on healthy areas. There is probably a marked increase in the number of mesoglial cells.

Dr Bruce said the change, which is not a primary gliomatosis, must have begun in the posterior roots. The change in the pyramidal tracts was not due to pressure of neuroglial tissue.

Dr Chalmers Watson questioned the validity of Dr Rainy's conclusions, and said there were some points in favour of the theory that the disease is due to an attenuated infection, as suggested by Adami.

Edinburgh Obstetrical Society

THE third ordinary meeting of this Society was held on Wednesday, 11th January. Professor A. R. Simpson occupied the chair. Numerous specimens were exhibited by the President, Professor Simpson, Drs Berry Hart, F. W. N. Haultain, Haig Ferguson and Barbour Simpson.

Dr Freeland Barbour contributed a paper entitled "Climacteric Hæmorrhage due to Sclerosis of the Uterine Vessels." (This paper will be printed in the next issue.)

The communication received a large amount of discussion, taken part in by Professor Simpson, Drs Jessie M'Gregor, Haultain and Fordyce.

Dr Scott Carmichael read a paper "On the Application of Bier's Hyperæmic Treatment in Gynæcological Disease." He thought that the method of treatment had considerable value in certain inflammatory conditions of the pelvic peritoneum and cellular tissue. Bier found by clinical and experimental observation that hyperæmia induced in a diseased part caused distinct and usually salutary changes in the tissues. The circulatory changes thus induced were either acute hyperæmia or passive venous congestion. The former condition was brought about by exposing a part to a high temperature, thereby increasing the rate of blood flow through to it by dilating the capillaries; the latter condition was induced by obstructing the venous return from the part, thereby producing more or less stasis and congestion in the blood-vessels. For obvious reasons the production of venous congestion in the pelvis was impracticable, and therefore active hyperæmia could alone be applied to pelvi-abdominal conditions. The following conditions were said by Bier to result from acute hyperæmia: (1) the alleviation of pain; (2) bactericidal action; (3) promotion of absorption of inflammatory products; (4) loosening of adhesions; (5) stimulation of general nutritive and regenerative processes.

Martin having noted the beneficial results of Bier's treatment had applied it to inflammation of the pelvic organs, and especially where there was much exudation, as in parametritis and pelvic peritonitis. In the treatment of pelvic exudations it had replaced, in his clinique, practically every other method of treatment. Clinically these exudations might be divided into those which were more or less acute and tended to suppurate, and the chronic forms which caused trouble from adhesions. The hot air treatment, by inducing hyperæmia, apparently hastened nature's processes, for in large or acute exudations rapid suppuration was often induced, while absorption was favoured in chronic forms. The method of application was as follows:—The patient was placed in an apparatus in the form of a box, enclosing the body from the ribs above to the middle of the thighs below. Air heated by gas or electricity was made to circulate through this box, and escaped through a small chimney. The temperature was regulated by observing a thermometer. The heating of the air required, as a rule, about

30 minutes to raise the temperature to 130-150° C. On the first exposure to treatment only a temperature of 110° C. could be borne, but this could be raised on each subsequent day until 150° C. could be tolerated easily. The whole surface of the body underwent an acute hyperæmia, which began when the temperature reached 100° C. Before the apparatus was removed the temperature in the box was allowed to fall gradually to body heat. Great local relief was usually soon obtained, and a general improvement in the bodily condition soon resulted. Even after a few applications, exudations previously as hard as stone began to soften and break down. In Martin's clinique this method of treatment had largely superseded such local treatment as ichthyol, glycerine, iodine, etc. The method was of great value in treating the adhesions associated with uterine displacements prior to operation and in cases of salpingo-ovaritis. Tubercular peritonitis, or tuberculosis of the uterine adnexa, were in no way improved, however, by this method of treatment, and it is, in fact, contra-indicated in such diseases. The method was also inapplicable in cases of high fever, during menstruation, or in cardiac diseases. While presenting this method of treatment as a valuable addition to those already in use for these most intractable cases of pelvic inflammation, it could not be denied that, like other means of treatment, it failed in certain cases; but in many instances its effect was undoubtedly most satisfactory, and it deserved a thorough trial in hospital practice.

The communication was discussed by Professor A. R. Simpson and Drs Jessie M'Gregor and F. W. N. Haultain.

Dr Barbour Simpson read a paper on a "Case of Fatal Complete Irreducible Prolapsus Uteri," which will appear in the Journal next month.

Glasgow Medico-Chirurgical Society

THE fifth ordinary meeting was held on January 13—the President, Dr Newman, in the chair; there was a good attendance.

1. Dr Alfred C. Young gave a communication on ruptured gastric ulcer, illustrated by several cases. The first was a man of 40, always thin and anæmic, and the subject of indigestion, who, while cycling on July 21, felt a violent sudden pain in the upper part of the abdomen. He was taken into the Western Infirmary. He was pale and cold, with a pulse of 60; the abdomen was very rigid, the note clear above, and the liver dulness little affected; an hour later the latter was distinctly

lessened, and the abdomen was opened. A little greyish fluid and some gas escaped; the stomach was empty, but distended. On its posterior aspect, near the cardia and the lesser curvature, an indurated ulcer was found, with a punched-out hole in the centre. This was not excised, but covered over by healthy wall, and stitched together. A certain amount of covering was got also from the mesentery. The peritoneum was in general healthy looking; it was sponged out and the patient made a splendid recovery, being fed with peptonised milk on the fourth day. The second case was that of a young woman of 25, who while drinking lemonade one evening was suddenly seized with severe pain, and was admitted to hospital four hours later. The abdomen was very rigid, there was great epigastric tenderness, and the liver dulness was little altered. Section showed the presence of an indurated ulcer on the posterior wall of the stomach, with a very small perforation in it. This was covered over by healthy wall as in the first case. There was only a little greyish fluid in the stomach. Recovery was excellent. Dr Young said those were very favourable cases, as they were seen early and the stomach contained little food. In a third case, section was done in a servant girl of 20, who was suddenly seized with violent pain, felt chiefly at the lower end of the sternum and passing up behind it. Ruptured gastric ulcer was suspected, but none was found. The abdomen contained some opaque fluid and some lymph flakes. It was explored generally, but nothing special was found except a little jelly-like material in the iliac fossa which was thought little of. After cleaning, the abdomen was closed, the patient rallied, but died on the third day. An autopsy was not allowed, and Dr Young, looking back on the case, thinks he must have had here a small ruptured ovarian cyst. In his fourth case the patient, a very anæmic girl, had had a sharp attack of pain and then peritonitis for a week before admission. A second severe attack sent her to hospital, where, on section, the stomach was found adherent to the abdominal wall, the adhesions covering in three-fourths of an ulcer, in which a primary small rupture may have occurred a week earlier. It was large and indurated. The ulcer was stitched over, the peritoneum cleaned, and the abdomen closed. The patient did well for a month, when a sub-phrenic abscess formed. This was ultimately evacuated, but the patient gradually sank, and died.

These cases were discussed by Drs Rutherfurd, Carstairs Douglas, Arch. Young, Maclennan, and the President, and Dr Alfred Young replied.

2. Dr A. Maclennan described the radical operation for osteomyelitis by excision of the shaft of the bone, and subse-

quent excision of the cicatrised skin, and showed several cases so treated. He claimed no originality for the practice, for it had been carried out for some time past by Riedel of Jena. Every surgeon knew how tiresome and hopeless the ordinary treatment of osteomyelitis was. Now he adopted the radical cure, if one scraping did not suffice. Taking the tibia as an example, he laid bare the bone by a clean sweep from the tubercle to the internal malleolus. The periosteum was divided and raised, and nearly all the shaft of bone removed in the adult by forceps, gouge, or chisel; in the child by a kind of strong spoon. Merely a strip of bone was left. The bleeding was checked by stuffing; the whole wound was packed, washed out occasionally, and a little pure carbolic, followed by spirit, run in. Healing took place with the skin adherent along a long cicatrix. This was protected by poroplastic, and in three or four months the scar was excised, the edges of healthy skin brought together, and healing secured by first intention. His results had been very satisfactory. The paper was discussed by several members, and Dr Maclennan replied.

3. Dr Wm. Watson read a short paper on scarlet fever, in which he gave some of his experiences when in residence at Belvidere Hospital, and expressed the opinion that too much stress was laid on infection by the skin.

Glasgow Obstetrical and Gynæcological Society

THE third ordinary meeting was held on Dec. 21—the President, Dr J. K. Kelly, in the chair. There was a large attendance. The following specimens were shown :—

1. By Dr Munro Kerr, a uterus removed, at the eighth month of pregnancy by Porro's operation, for cancer of the cervix. There had been bleeding during pregnancy.

2. By Dr Edgar, a mulberry calculus from the ureter; it was in the position of a prolapsed ovary, and was not diagnosed before operation.

3. By Dr J. K. Kelly: (*a*) a uterus with a large cystic myoma projecting from the fundus; (*b*) a dermoid cyst; (*c*) an ovarian cyst with certain special features.

4. By Dr Jardine, two drawings illustrating corneal opacities in the new-born child; in one there were the ordinary vertical bands, in the other there were transverse.

A discussion of the "Treatment of Uterine Prolapse" was then introduced by Dr W. L. Reid. At the outset Dr Reid

said he would limit himself to cases of a more or less chronic kind, and particularly those requiring some form of operation. In mild cases a pessary could really cure; the best form was an Albert-Smith with a strong sacral curve. Astringent douches, massage and electricity he considered practically useless. Even where the perineum was defective, a Hodge pessary bent up like a cradle could give relief, and so could the watch-spring pessary. Other forms were useless. Of artificially produced inflammatory thickening of the broad ligaments he had no experience. The essential point in causation is weakening of the pelvic floor; mere repair, however, is often insufficient, and the cervix reappears. The latter, if thickened, should be amputated, and involution might be aided thereby. Hysterectomy did not cure the bladder and rectal prolapses, and even in ventro-fixation the cystocele might persist. A good fixation, however, was often successful. The Alexander-Adams operation had given him some successful results, but in some cases it had failed utterly. Intra-abdominal shortening of the utero-sacral folds he did not think useful. Noble had suggested supra-vaginal amputation of the uterus, with fixation of the stump in the lower angle of the abdominal wound. This sometimes cured prolapse, rectocele, and cystocele. Freund had suggested that in old and feeble women silver wire should be passed round and round under the vaginal mucosa, so as to form as it were shelves. Complete closure of the vagina should not be done. Dr Reid, in concluding, said that in simple prolapse he did a ventro-fixation, but not by Kelly's method. In severe cases he did an extensive anterior and posterior colporraphy, with amputation of the cervix. After this the nurse douched regularly. If the uterus still descended, he opened the abdomen and fixed it; this was not often required.

Dr Edgar said he had tried paraffin injections in three cases; the pessary was not needed then. The results were not specially good. In general he followed Dr Reid's procedure, but he did not advocate douching after perineal operations. Not infrequently he did a vaginal fixation, having the stitches in for six weeks. Pregnancy could take place and proceed normally. In ventro-fixation before the menopause he tried for a sero-serous union, and after it for a sero-fibrous one.

Dr Scott Macgregor said he began with a trial of the pessary with or without perineal repair. Not infrequently he did a ventro-fixation, taking peritoneum, muscle and fascia in the stitch. Dr Munro Kerr spoke on the importance of building up the pelvic floor in layers when repairing the perineum, and Dr Balfour Marshall and the President also spoke, after which Dr Reid replied.

Glasgow Pathological and Clinical Society

THE fourth ordinary meeting was held on January 9—the President, Professor Muir, in the chair. There was a good attendance.

1. Dr Walker Downie and Dr T. K. Dalziel reported the case of a patient on whom removal of the pharynx and part of the larynx had been performed for malignant disease. The subject was a woman who consulted Dr Downie in January 1904 for pain and difficulty in swallowing, referred specially to right tonsillar region. Nothing of importance could be seen, and she improved under bromide and iodide of potash. Some months later she again had pain, the upper end of the gullet seemed narrowed, and there was an enlarged gland at the right angle of the jaw, and soon after she was taken into Dr Downie's ward with urgent symptoms, and a sessile ulcerating epithelioma round the gullet was readily seen. Gastrostomy was suggested, but Dr Dalziel considered there might be a chance of removing the growth, and accordingly a radical operation was attempted. Preliminary tracheotomy was done, and an incision made from the right angle of the jaw to the sternum. The branches of the external carotid, and the lingual and other veins, were ligatured, and the sterno-mastoid and great vessels pulled back. The wall of the pharynx was fixed, and it was separated superiorly at the upper constrictor, inferiorly at the cricoid, and then freed on the right side and then the left. The posterior wall of the larynx, including the arytenoids, was taken away, and the upper end of the gullet fixed in the lateral wound. The buccal cavity was stuffed. Recovery was excellent, though the saliva gave trouble at first, as it could not be swallowed. Later on much less was secreted. The patient feeds herself by a long tube. She has kept very well for six months; there is now sign of recurrence on left side. Professor Muir, Dr G. B. Buchanan, Dr Knox, and Dr Rutherfurd spoke, while Dr Dalziel replied.

2. Dr John Teacher showed a specimen of multiple carcinoma of the intestine. It had occurred in a man of 54 years, who had suffered from pain, vomiting, diarrhœa, and signs of obstruction. The colon was opened and he died soon after. At the autopsy, extensive peritonitis was found, and two and a half pints of pus were taken out of the hypogastric region. About twenty nodules were located in the large bowel, several in the small, and the mesenteric glands were enlarged. One of the nodules had ruptured through. The mesentery was hard and puckered. The nodules were of the nature of a columnar-

celled epithelioma, and the primary tumour appeared to be in the rectum. The infection, however, had not followed any of the ordinary lines, and there were no secondary liver nodules.

3. Dr Rutherfurd described a similar case, and showed the specimen. The patient was a man of 34, on whom he performed colotomy in 1900; two years later he had severe pain and urgent symptoms. The abdomen was opened, and gross fæcal accumulation found. Death occurred in a few hours. Post-mortem, the appendix was enlarged and perforated, and at the hepatic flexure of the colon was an epithelioma which had also perforated, and there was extensive malignant disease in both iliac regions. These cases were discussed by Drs J. K. Kelly and G. B. Buchanan, and by the President.

4. Dr Knox showed a specimen of encysted infantile hernia, and read notes of two cases. The condition, he said, was rare, and he had only had these two cases in twenty-five years' work. It was well described by Hay nearly 150 years ago, and was figured by Astley Cooper in his work on hernia. It was a hernia where the bowel came down through the inguinal canal, pushing the united upper end of the processus vaginalis before it into the body of the tunica vaginalis, which was invaginated. His first case was a child of two and a half, who had symptoms of strangulated hernia. He cut down, found a typical encysted infantile hernia, reduced the bowel, and cut off the double peritoneal structure. His second case was a man of 72, admitted only in December last, and who stated that he had had a hernia ever since he could remember, but that he had had no trouble with it till two days before he came into hospital. When seen it was as large as a cocoa-nut, in the right inguinal region, but not descending into the scrotum. The right testicle could not be felt. On cutting down, the serous cavity was at once found, and at the side of it the atrophied testicle. A loop of colon occupied the sac. Recovery was uneventful. The cases were discussed by Dr Rutherfurd and the President, and Dr Knox replied.

5. Dr J. K. Kelly read notes and showed specimens from some cases of uterine myoma and ovarian dermoid. Among them were: (*a*) A large myoma of the uterus, with tubercular disease of the tubes, removed from a x-para last spring; (*b*) a large myoma complicating pregnancy, removed last September from a i-para of 41 years; the specimen showed the large tumour above and the three months' fœtus below; (*c*) a uterine fibroid undergoing myxomatous degeneration; (*d*) an ovarian dermoid cyst, and various others.

6. Dr Napier read notes of a case of patency of the interventricular septum, and Dr John Anderson demonstrated the

specimen. The patient was 32 years of age when admitted to hospital; she was very pallid and seemed very anæmic. Death occurred from syncope. Although the condition was congenital apparently, there were no symptoms till the patient was 15, and even then they were so slight that she was able to remain in service till she was 26 years.

7. Dr Napier also read short notes of a case of tubercular meningitis closely resembling enteric; the patient was a young man of 21, and although the Widal test was negative, it was regarded rather as enteric than anything else, and certainty was only attained at the autopsy.

Glasgow Southern Medical Society

THE seventh ordinary meeting was held on January 12, at the Dispensary of the Royal Hospital for Sick Children, when Dr Jas. H. Nicoll, the senior out-patient surgeon, gave an interesting demonstration of various groups of infantile affections. There was a large attendance. The following groups of cases were shown:—

1. Hernia of the ovary. Dr Nicoll said he had had no fewer than 25 such cases in young children, the diagnosis being completely verified in 12 by operation. In several the ovary was removed for some complicating condition—*e.g.* torsion of the pedicle, cystic changes in the gland, and adhesion of the investment on the posterior wall of the canal of Nuck. In his experience the hernia was usually on one side, only three cases being bilateral. This was opposed to Mr Bland Sutton's finding.

2. Birth-fractures. These might be called "green-stick fractures of the skull." They occurred either during parturition, from pressure by the sacrum, or in post-natal life from a sharp blow or fall on the head. A distinct depression resulted, and in the centre of this was often found a little elevation, either a hæmatoma or a small encysted collection of fluid escaping from the meninges through a small fissure. If the cases were seen at once the condition might be rectified by manipulation by Munro Kerr's method, or by incision through the bone with the use of an elevator. If one to three months elapsed, this could not be done. He then used a special trephine, and inverted the disc of bone.

3. Cerebral paralysis of infancy and childhood. Dr Nicoll said this included a large group of cases, the so-called "plegias." In some instances the cause was possibly prenatal, and these were little understood; in most the cause was parturitional,

either traumatism affecting the head, or asphyxia neonatorum. Some cases occurred still later. Surgical interference was unfortunately not very successful, since, by the time the child was brought for aid, cerebral changes had taken place, and the paralysis or spasm was confirmed. Occasionally one could do good for some result of the condition, *e.g.* curing a bilateral talipes equinus.

4. Congenital hypertrophic stenosis of the pylorus. This condition was not very common, and evidenced chiefly by early vomiting and constipation of an obstinate kind. It looked very like a catarrhal condition of the stomach, but in the latter the bowels were loose, as a rule. Some cases recovered spontaneously, but in others it was quite obvious that only operation and stretching of the pylorus could avert death. He showed the first case operated on in Scotland—done at the age of one week, when much reduced by vomiting—now a stout, rosy boy of five or so. The mortality from operation was high, and in the nature of things must be so. He had had three deaths in fourteen operations.

5. Abnormalities of the post-anal gut or neurenteric canal. Under this head were included various cysts and solid tumours developing in connection with some embryonic tubular connection between the primitive gut and the canal of the notochord. In one case operated on there was a large, nearly solid tumour, with a small opening below, through which both fæces and cerebro-spinal fluid escaped.

6. Other cases shown and described referred to hare-lip, cleft-palate, club-hand, and club-foot. All these and the preceding cases were illustrated by actual patients, lantern slides, photographs, specimens, and instruments, and at the close Dr Nicoll was awarded a very cordial vote of thanks for his admirable demonstration.

Obituaries

Alexander Lockhart Gillespie, M.D. Edin.

IN the premature death of Dr Lockhart Gillespie the medical profession in Edinburgh has lost one who, early in his career, showed promise of a successful and even a brilliant future. Graduating in 1888, he later obtained his doctor's degree with a gold medal for his thesis upon the chemistry of digestion. He turned his attention mainly to the study of the disorders of

digestion, and he came to be regarded by the profession as an authority in this branch of medicine. A rapid thinker and quick with his pen, writing was easy to him, and even in his brief career, his contributions to the literature of his speciality were numerous.

The name of Gillespie has long been closely associated with the medical profession in the city, the father and grandfather of the deceased having been prominent practitioners in their day. Like them, Dr Gillespie held, amongst other appointments, that of medical officer to Donaldson's Hospital, an educational charity which was founded early in the last century by one of his relations.

He was a great walker and took the keenest pleasure in holiday excursions in the Scottish Highlands. Starting with a few friends, he would soon outdistance them, and arrive at the pre-arranged destination far in advance of the rest of the party, having at the same time ascended more peaks than the others. He had a keen appreciation of certain aspects of nature, and when walking he always carried a small sketch-book, in which, in a rapid and deft way, he cleverly depicted the different mountain tops and ranges, and the passing cloud effects. At his leisure he transferred these scenes to canvas, and on more than one occasion the walls of the Royal Scottish Academy were adorned by a picture from his brush.

He was also a student of meteorology, and was well versed in that branch of science. His interest in the subject led him to study the influence of the weather upon disease, and he read in this connection before the Royal Society of Edinburgh, of which he was a Fellow, a paper upon "The Weather, Influenza and Disease."

By his early death, medicine has been deprived of an able and energetic worker, while his friends deplore the loss of one in whom the elements of genius were to be recognised.

A. L. T.

Dr William Carmichael, Edinburgh

WE record with sorrow the death of this well-known and highly-esteemed practitioner, which took place in London on December 31st, after a few days illness of pneumonia. Dr Carmichael, who had been suffering from the strain of hard work, and also from the effects of a recent attack of influenza, had gone for rest and change, and was on his way to the south of England when he was overtaken by his fatal illness.

A graduate of Edinburgh, Dr Carmichael, after serving for six months as a resident house surgeon in the Royal Infirmary, settled in Morningside, and soon acquired an extensive practice in that rapidly growing suburb. He was an example of the finest type of general practitioner. With a foundation of sound clinical knowledge, he possessed a shrewd and sagacious mind, and ready resource in dealing with disease. But probably the most conspicuous feature of his professional character was an untiring and self-sacrificing devotion to his patients. He laboured for them late and early, and these efforts, combined with his tender-heartedness and sympathy, drew largely upon his physical and nervous energies, and wore down his strength. But it was not in vain, for he lived in the respect and affection of the large circle to whom he ministered, and who are now lamenting his premature death. Singularly retiring and modest, Dr Carmichael felt few of the usual ambitions associated with professional life. One ambition he did possess—to be a humble follower of the Master he tried to serve, "who went about doing good." A life so consecrated and given to the service of the suffering tends to exalt our profession in the esteem of men, and sheds a benign influence over even a wider sphere than that in which it has been spent.

Dr Carmichael has left a widow, for whom wide sympathy is felt. J. O. A.

Dr Ogilvie Grant

Medical Officer of Health for Inverness-shire

WE regret to announce the death of Dr Ogilvie Grant, which took place at Maryhill, Inverness, on the 9th January. For some months back Dr Grant had been in an indifferent state of health: an attack of pleurisy followed by a pneumothorax undermined his constitution, and although migrating to the more congenial climate of Bournemouth, in the hope of effecting some improvement to his general health, his strength gradually failed, and a few days before his death he expressed a wish to be taken back to his Highland home; this wish was fulfilled, but he only survived a day or two after his removal.

Born forty-eight years ago, Dr Grant belonged to a well-known family in Inverness, his father, the late Mr W. R. Grant, being a solicitor in that town for many years. After leaving the Inverness Royal Academy he was a short time at the Edinburgh Academy before entering the University, where he graduated M.B. and C.M. in 1882, taking his D.P.H. in 1890.

After spending some time at the post-graduate classes in Vienna and Prague, he commenced practice in his native town, being associated with the late Dr Chapman. During the time he was in private practice he acted as one of the medical staff of the Northern Infirmary. When the County Council came into existence, Dr Grant was appointed medical officer for the county, a position which he held up to the time of his death. He was also M.O.H. for the town, as well as Police Surgeon. The vast area of the county of Inverness, extending as it does from one side of Scotland to the other, and including several of the Outer Islands, entailed a considerable amount of travelling, besides a great deal of clerical work. Dr Grant's reports always contained something of interest in connection with public health. It may be remembered that Dr Grant some years ago attracted attention to the miserable condition of many of the houses of the crofters on the West Coast and Outer Islands, and did much both by directing and instructing the sanitary authorities in these outlying districts to bring about a better condition of things, as well as by personal supervision. Dr Grant was a member of the British Medical Association, and represented the Northern Counties Branch on the Central Council for several years. He was in a great measure responsible for getting the travelling expenses of members of the Council paid. He was also a Past President of the branch. He was President of the Caledonian Medical Society in 1902. Dr Grant was an active member of the Volunteer Force, being at the time of his death Brigade Surgeon-Lieutenant-Colonel of the Highland Brigade. He devoted much time to ambulance work, and was a life member of the Order of St John of Jerusalem. He was also a member of the Masonic Brotherhood. J. M. M.

Letter to the Editor

DEAR SIR,—I avail myself of the opportunity you present in the January number of your Journal for discussion of subjects of special interest to our Medical School and Royal Infirmary. I desire to reopen a matter on which I have already written in the Journal. Being deeply interested in the subject of clinical pathology, and firmly convinced of its great importance, I feel sure that Edinburgh might, as in the past, initiate useful reform. My thesis is the subject of the separation of clinical pathology from morbid anatomy. The scope and limitation of clinical pathology is only now being generally recognised, and

every properly trained physician and surgeon must now have practical experience of the aids to diagnosis from bacteriological, histological, and chemical methods. In my paper already referred to I endeavoured to show that the modern separation of pathology from medicine, however regrettable, is inevitable. As a result of this separation, the pathological posts in the Royal Infirmary, as elsewhere, are held by those who do not propose to proceed to the work of the ordinary physician and surgeon, and there is a consequent loss of valuable experience to the hospital on the clinical side. The solution of the difficulty does not seem insuperable, and I maintain that a rearrangement of the pathological department would be of great value to the hospital in many ways. The present time seems particularly opportune. As you are aware, owing to a fire in the department last July some reconstruction has been necessary. No extensive alterations are being made in the building, and it is hoped that the ordinary accommodation will soon be available. It seems to me that the Managers might, at no great expense, contemplate the appointment of two clinical pathologists, medical and surgical. These might well be drawn from the present clinical tutors; accommodation could be found in the present buildings, and they would work there under the supervision of the senior pathologist, and would deal with reports on material from the medical and surgical wards respectively. Their work would consist in reporting on the nature of tumours, and in the bacteriological and histological investigations now so often necessary to definitely establish a diagnosis. There need be no curtailment of the ordinary side-room work, but there are many instances in which the work cannot be properly carried out there. I need not point out the value of the experience gained in this way; and of necessity from close association with the pathological department, the clinical pathologists would acquire a sounder practical knowledge of morbid anatomy. No doubt the Managers may view with reasonable dislike my proposal to increase the expenditure on a department which has been liberally dealt with in recent years, but the expense need not be great. The special advantage to the department, as it at present exists, would be that the pathologists, freed from the routine reporting work which is constantly increasing, could devote themselves entirely to the thorough working up of the post-mortem cases. This is impossible at present, but till it is done, there will be an inevitable loss of most valuable material, and opportunities for important research are lost. These, Sir, are the main points I wish to bring again before those interested in the development of our Medical School. Though I do not wish to write at undue length, I cannot avoid pointing out that

the logical outcome of a department of clinical pathology would be a department where the various men in training for posts on the permanent staff for the various special departments would be reporting on material from their respective wards and laying the soundest foundations for their clinical work in the future.—I remain, yours faithfully, STUART M'DONALD.

Editorial Notes and News[1]

Poverty and the Unemployed.

YEAR after year the winter brings with it the problem of the unemployed, itself part of the larger problem of the poverty existing in our midst. The graphic descriptions appearing in the daily press of the gatherings in the public soup-kitchens of the denizens of city slums compel our recognition of the existence amongst us of a population poor not only in this world's goods, but to a large extent poor also in health and strength, and wanting in the intellectual capacity, the moral force, the energy and push and perseverance which distinguish a citizen from a denizen. And year after year, how unavailing are our efforts really to grapple with the canker in our midst. What amount of prevention has been achieved, what can be expected, by all our soup-kitchens, and newspaper-funds, our charities and artificial "work" for the unemployed? These do not even aim at prevention. At the best, they give a little temporary relief to a few. At the worst, they increase in the long-run the wrong and misery they aim at alleviating, and multiply the numbers of those to whom work is a greater evil than the want of it.

The failure of our unorganised sporadic efforts at charitable relief has naturally led to numerous suggestions as to other remedies which might be tried. Some of these have already reached the experimental stage. The favourable results which have been gained by farm colonies in America has led an American citizen to offer land for this purpose to various bodies in England, and the Committee of the Mansion House Relief Fund has begun some experimental work at Hadleigh and Osea, which is already attracting a good deal of interest. The plan has been to send selected heads of families to regular work in the country, while their families are supported from the funds in London. The experiment seems to have attained already some measure of success, but it would appear likely to meet the

[1] This department of the Journal is under the control of the Senior Editor.

necessities of one class only of the unemployed, and to be useful chiefly in carrying us over a period of special distress.

At Elberfeld, in Germany, there has been in vogue for many years a system which provides help for the poor in time of need, for which a great deal is claimed. In one respect at least this system is certainly based on correct lines, and that is, that it is a preventative system. By providing assistance where really needed, long before the British Poor Law would do anything, it is asserted that no one can go hungry or insufficiently clad in Elberfeld. The city does not permit it. And this assistance is given in such a way, with such knowledge of the needs of individual cases, with such care and thought for the special circumstances of each case, that the moral condition of the people has improved, and the finances of the city have been saved to a very considerable extent, although the cost of the whole is borne by the city budget. The successful practical working of the system appears to be due to two main causes. The first is that it is a Municipal system. All the resources of the city for the relief of poverty and distress are unified and centralised. There is none of the ruinous overlapping and confusion which exist among ourselves in the administration of all kinds of charitable funds. The second factor of the system's successful working is found in the splendid enthusiasm and the practical sagacity of the large band of voluntary "helpers," whose business it is to know the circumstances of the poor in some small part of the city assigned to each, really to know the families individually, and to look after them helpfully in case of need.

We have not space to go into any further description of the system here, but our readers who have not yet studied Miss Sutter's little book, "Britain's Next Campaign," will find there a very interesting account of how things are managed in Germany, an account which is none the less interesting because the authoress has evidently had Edinburgh and its problems very much in her mind while writing her book.

It is scarcely likely, of course, that a system such as that of Elberfeld, however successful it may be, could be transferred without modification to this country. As Canon Scott Holland says, it would "need much adaptation in handling our moving swarms of airy, independent, shiftless folk, clinging to their liberty, suspicious of officialism, careless of the morrow, unrooted, homeless, without tradition, delighting in the free come-and-go of the street, hating rule, and method, and system, defying science and classification." But for all that, the spirit of the Elberfeld system is what we need here in Britain, and who will say that a system which has been in successful practical opera-

tion for years among our neighbours is impossible of adaptation to our own special needs.

The Age Limit.

THERE was no attempt made at the Meeting of the Royal Infirmary Contributors to upset the decision of last year's Board, and so the matter may be taken as finally settled.

No one in future will be appointed to charge of wards in the Royal Infirmary, except on the distinct understanding that he is to retire on attaining the age of 65.

Whether the University will endeavour to have the tenure of the chairs concerned altered is as yet unsettled. As one of our contributors last month pointed out, the present is a most suitable time for the introduction of such regulations.

Sidelights.

UNDER the heading of "A Sidelight on Medical Education," our contemporary, the *British Medical Journal*, recently published certain figures, being a return to the General Medical Council indicating the place of *qualification* of the candidates, both successful and unsuccessful, in the competitions for the Services. The apparent deduction from the figures is that the English double qualification is, next to London University, the most successful, and some anonymous writers have endeavoured to deduce the further fact that the sort of education given in London for that licence is the best kind of medical education. But like sidelights in general, this one is apt to throw false shadows, and altogether to distort the proportions. The figures give no indication where the candidates were *educated*, nor is there any mention of whether or not they had undergone special preparation for the examinations, as it is notorious that so many do.

Then it has also to be remembered that a commission in one of the Services represents the summit of the ambition of the *double qual.* man. To him teaching appointments, hospital surgeoncies and consulting practice are practically closed, and thus it is natural that the best of the licentiates choose the Services, while the pick of the graduates carve out other careers.

The R.A.M.C.

THE appointment of Surgeon-General Keogh to the Director-Generalship has roused quite a little storm among those who cling fondly to their red-tape fetters. During the Boer War we were all ardent reformers, all determined to see that we

got value for our money, and a really efficient medical service. An Advisory Committee, on which were well-known civilian physicians and surgeons, was appointed, and that it is believed to have done good work is shown by the greatly increased entries for the Service examinations. We stated at the time, and we are still of the opinion, that had there been a direct Scottish representative on the Board, something might have been done to induce the better class of Scottish graduates to contemplate the Service as a career. The main aim of this committee was increased efficiency, and in selecting a comparatively young man for the post of head of the Medical Service, they have, it appears to us, only done their duty. No doubt those seniors who are passed over are tó be sympathised with, in that the reform of the system has caught them out, but no reform is ever made without someone getting hurt, and the interests of the country must come first.

Scotland has had a virtual monopoly of the post for a long time, and we cordially wish the new Director-General as much success in his work as his brilliant compatriots in other branches of His Majesty's service.

Hospital Expenditure.

THE figures of the comparative expenses of different hospitals recently published are greatly to the credit of the Scottish hospitals. Our national character would have led us to expect that the expenses here would not be so great as south of the Tweed, but we question whether anyone imagined that there were hospitals expending two and a half times as much per bed as the leading Scottish Infirmaries. The figures have attracted considerable attention in London, and already deputations have journeyed north to see how it is done. We find on enquiry that the cost per bed in Aberdeen Royal Infirmary is £52, 2s. 7d., nearly £10 under that of Edinburgh. Evidently the deputation should have advanced further northwards. It would, we think, be well to have a general exhaustive enquiry, for it is inconceivable that the difference in cost in living can be so great. After all, beef and bread, bought wholesale, cost pretty much the same everywhere. But there is no doubt that rates, lighting and heating are much more expensive in London, and salaries are said to be heavier items there than with us. But we hope that there will not arise a Dutch auction competition between the managing Boards, and that especially in regard to surgical appliances and the like there will always be liberality. When one reflects that an inefficient steriliser may mean the death of a patient, it is little satisfaction to be at the bottom of the list of the expenditures on surgical appliances.

Faculty of Physicians and Surgeons, Glasgow. New Examiners.

AT the January meeting the following changes were made in the Examining Board. Dr A. K. Chalmers was elected an examiner in State Medicine for the Fellowship, and Dr Carstairs Douglas as examiner for the Diploma in Public Health, in place of the late Dr J. B. Russell; Dr Fullarton was elected to the Physiology examinership, in place of Dr Edington, resigned; and Mr Mackay was nominated for the examinership in Dental Metallurgy.

Appointments.

MR SCOT SKIRVING has been appointed Surgeon to Leith Hospital, in succession to Dr W. Stewart, appointed Consulting Surgeon. The vacancy on the Assistant Staff has been filled by the election of Mr Charles Heron Watson.

Mr Balfour Paul has been appointed Assistant-Surgeon to Chalmers' Hospital.

Recent Literature

CRITICAL SUMMARIES AND ABSTRACTS

MEDICINE

By DAVID LAWSON, M.A., M.D.,
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SURVEY OF JOURNAL LITERATURE PUBLISHED DURING 1904 BEARING UPON SOME PHASES OF TUBERCULOSIS AND ITS TREATMENT

IF abundance of material renders the reviewer's work easy, then the present task had been light indeed. For during the past twelve months the mass of literature which has been written upon this subject has been very great—far beyond what could possibly be compressed within the limits of a single article such as this. Embarrassed with a wealth of matter, omitting all allusion to the results of researches in the pathology of the disease and the controversy which rages around the problems which are more directly associated with the name of Koch, the writer has elected to deal only with that portion of the literature which in his opinion is likely to prove of special interest to the majority of men in practice. He has therefore contented himself with bringing under notice at this time some of the more recent pronounce-

ments and suggestions which have been made in connection with the treatment of Tuberculosis in its various forms, and in addition some of those efforts which have been made to meet by municipal and legislative action the outstanding difficulties to which the presence of the disease in this and other countries has given rise.

Weber (1) lays stress upon the value of temperature as a guide to treatment. In passing it is interesting to note that he frankly admits the superiority of rectal over other temperature records. After having generalised over a large number of cases, he lays down the law that every patient should rest six hours daily and ten at night—sixteen in all out of twenty-four hours. With this as a starting-point, he proceeds to assert that for every one-tenth degree C. the patient's temperature is above 36.6° C., he ought to rest one hour daily in his lounge chair. Thus a rise of eight-tenths or 37.2° C. would necessitate complete rest during the whole twenty-four hours. We must confess to possessing a prejudice against adopting so arbitrary a rule as this is, and to being, on the slender evidence adduced, altogether unconvinced alike of its wisdom or its value. If success in treating tuberculosis depends more upon one factor than upon another, it depends upon its being modified to suit individual cases. Such rules based upon percentages, in so far as they make no allowance for the individual factor, must always possess insuperable objections.

Before dealing with what has been done in the matter of therapeutics, it is proposed to allude very briefly to three forms which, for convenience, may be classed as drug treatment. Theoretically, carbonic acid might be expected to prove valuable as a therapeutic agent in cases of phthisis. For, as Weber (2) points out, whilst children born with tricuspid stenosis, and whose lungs in consequence contain an abnormally small amount of carbonic acid, practically always die of phthisis, patients suffering from emphysema, complicated by cardiac disease and venous stagnation, rarely do so. Proceeding upon this reasoning, he gave laevulose (in the case of a child of eight years up to two ounces daily). This he supplemented by hypodermics of antiphthisicine in 10 c.c. twice daily, inserted into the fat—an essential point. He claims that sixty per cent. of all cases treated by this means were cured.

Iodoform has had its advocates in Dewer (3) and Barr. The former applied it in a series of selected cases of pulmonary phthisis. Whatever its advantages—and we think the writer has not altogether succeeded in proving that it possesses any—the facts that the application of large doses has occasionally been followed by the patient becoming immediately unconscious, and that

the technique is a somewhat delicate and difficult one, are likely to prove serious obstacles to its general adoption. The iodoform is dissolved in ether and ejected intravenously, the seat of election being the veins over the condyles of the arm. It is customary to begin with 5 minims daily, and gradually to increase the dose up to 40 minims daily. Atheroma is, of course, a contra-indication to its use.

Under serum therapeutics, possibly the most important communication to be noted is that read by Marmoreck (4) before the Paris Academy of Medicine, dealing with the results obtained by the application of a new serum, introduced by himself.

We pass by that portion which describes the method by which the serum is obtained, in order to deal with its claims. The writer bases his inferences upon two thousand cases of Tuberculosis, of many different forms, which he treated by this method. The fact that only in three instances local abscess occurred, is a testimony to the care adopted in administering the injections. He claims to have effected a complete cure in several cases of Potts' disease, complicated either with fistula, abscess, or intestinal perforation, or pulmonary tuberculosis; to have brought about progressive diminution of glandular masses in the neck, groin and pelvis, as well as to having procured the closing of fistula which had long been open—truly a formidable achievement. There is one point which he asserts distinguishes this serum from all others. Temperature is no contra-indication to its use; on the contrary, it is pointed out that it finds its sphere of greatest usefulness in those cases in which well-marked hectic fever is an outstanding clinical feature. It operates by rapidly reducing such pyrexia. For the present these statements alike await corroboration and contradiction. Sufficient time has not yet elapsed to admit of either. True, one observer [Latham (5)] has submitted the opinion: (1) that it does no harm; (2) and that it exerts a specific anti-toxic effect. But in so far as, on his own showing, this opinion is based upon a comparatively limited use of the agent—applied in some thirty cases and not extending beyond a period of three months —the opinion is hardly worth serious consideration. Indeed, a perusal of this paper leaves one with the impression that it is a pity it was published, as it is so altogether premature and incomplete; that alike as a contribution to the subject, and a production designed to enhance the reputation of its writer, it altogether fails in both respects.

Beraneks Tuberculin has been used by Christy Wilson (6) in a limited number of cases. Fifty-eight per cent. of the cases treated during the last three years show improvement. Many of these were, moreover, pyrexial cases. In lung cases the

serum is given hypodermically, but where it can be locally applied, as in lupus and laryngeal disease, it is directly applied to the part. It seems worthy of trial.

Occupying a position midway between purely medical and purely surgical methods of treatment, there naturally falls a consideration of the use of tuberculin. Many papers have appeared during the past twelve months on the uses and value of tuberculin, but of these only two fall to be noted here.

Schules' (7) experience of its value as a diagnostic has been a singularly unfortunate one, for he is able to point to a case in which, after its use, the patient developed acute symptoms, which ended fatally, and post-mortem examination made one month after the treatment was begun showed tubercle present in the bronchial glands, left-sided pneumonia and miliary tuberculosis in both lungs. We are not surprised to learn that he has since given up the use of tuberculin as a diagnostic agent.

Infinitely more reliable is the pronouncement on the same subject made by Trudeau (8), of America. His opinion, founded upon results based on an experience of its use as a therapeutic agent, extending over twenty years, is entirely in its favour. Whilst of these early cases in which it was not used, at the time of writing 61 per cent. were alive, similar cases which had enjoyed the advantage of tuberculin treatment showed 76 per cent. to be still flourishing. Trudeau is a strong advocate of its use in early cases of pulmonary phthisis.

In a very thoughtful and suggestive paper upon the subject of bronchitis and emphysema, tubercular and other, James (9) utters a strongly worded protest against the method which has hitherto obtained of inserting at random, at a large number of different points through the chest wall, exploring needles, with the object of ascertaining the seat of pus in the lung. His method of first resecting, and then exploring directly through the lung surface by means of needle, is obviously much safer and cleaner than the clumsy and haphazard method which has obtained of yore. It is claimed that the actual lung explorations are practically painless. The paper is accompanied by instructive drawings, which materially add to its lucidity and value.

The value of Biers' passive congestion (10) in the treatment of tuberculous joint affections is again raised by Habs, who has made use of it in two hundred cases, and now favours us with his experience. The best results obtained were in the cases of children. His method is as follows :—During the first eight days a contracting band is applied twice daily, and retained in position for from four or five hours at a time. Thereafter the length of time of each application is gradually reduced until it does not

exceed one hour. Two applications daily, each of this duration, are continued until recovery has taken place. The treatment may be supplemented in obstinate cases by local injections of iodoform. The principal drawback of this method is its long duration. The writer concludes by stating that it is indicated as an initial measure in the treatment of all cases of joint disease. But in those cases in which the skin has broken down, and extensive bone disease is present, too much time should not be spent waiting for it to produce improvement.

It is interesting to record that these results have been confirmed by Fowler, Keliane, and others; particularly by Meyer, who records an instructive case of Tuberculosis in a man of forty-two years of age, which he successfully treated in this way.

It may prove of interest to dermatologists to know that in lupus erythematoides, Hollander (11), after unsuccessfully applying hot air treatment, has hit upon a method which he claims has met with success in three cases. He administers quinine sulphate in doses of 7½ grains three times daily, and paints the affected part with iodine from five to ten minutes after the administration of each dose. The treatment is administered for six days, after which it is suspended for a like period. Applied at alternate periods in this way it has, he claims, always proved successful. Tubercular meningitis (12) remains as intractable as ever to all treatment. Still, it is encouraging to find one writer recording two cases of recovery under internal administrations of ergot, five minims potassium iodide and B.I., two hourly.

For an interesting and important communication on the subject of the treatment of urinary and bladder tuberculosis, we are indebted to Fenwick (13), who read a paper upon that subject before the London Medico-Chirurgical Society. The discussion which followed elicited many points of interest. Excision is recommended, either in the case of renal tuberculosis, or where a single ulcer is recognised as being present in the bladder. And simple uncomplicated cases of bladder tubercle should be treated by administering new tuberculin. On the whole, the use of santal oil is recommended in preference to urotropine.

It is quite possible that in the past we have not been quite so enterprising in dealing with Tuberculosis of the alimentary tract as we might have been. This is the impression left by Renton's (14) paper, in which he shows the possibility of surgical intervention in such cases. He gives details of two cases. In the case of one, after removal for tuberculous disease of the ileum, cæcum, and ascending colon, the patient was quite well eighteen months afterwards. In the other, the patient was in perfect health fifteen months after removal of the cæcum and appendix for the same cause.

Tubercular peritonitis (15) is treated by Thomayer by inunctions of iodoform soap (iodoform minim 1, soft soap grammes 20) rubbed over the abdomen, followed by the application of moist compresses covered with gutta-percha tissue. The inunctions are applied twice daily until the skin becomes irritated and red, after which cold compresses are applied for one or two hours daily. The treatment is carried out under sanatorial conditions. He records eleven cases, in most of which he claimed to have been successful. Uncomplicated fluid cases are the most promising for the treatment.

The *Archives Pediatric* (16) of New York gives the results of treatment of forty-one cases of tubercular peritonitis, extending over a period of from one to six years. The article is interesting from two points of view. In the first place the writer takes a favourable view of prognosis in those cases which are uncomplicated by pulmonary disease; and in the second place, from being an advocate of laparotomy, he has come round to believe that its use as a matter of routine is discredited—and it should be reserved for pure emergency complications, such as caseation of the mesenteric glands, or for obstruction arising from the formation of bands of mesentery. Certainly in the results quoted the evidence seems to be all in favour of expectant treatment.

In the direction of enlisting the services of the strong arm of the law in assisting to restrict the ravages of tubercular disease, it is pleasant to be able to record the fact that some advance has taken place. Sheffield (17) has rendered yeoman service by publishing the fact that voluntary notification, at first opposed by so many theoretical objectors, has gradually found acceptance with the people. This statement brings out the fact that, whilst in the year 1900 only 105 persons took advantage of the opportunity offered by the extension of the voluntary notification measures to Tuberculosis to report cases of phthisis occurring in their families, in 1902 the number had grown to 224 during that year alone. But the growth of the appreciation on the part of the people themselves has not remained stationary. It has steadily expanded and increased, until it has borne fruit.

By including Tuberculosis in its compulsorarily notifiable diseases, Sheffield has won for itself the enviable distinction of leading the van in this country in the adoption of progressively efficient measures for dealing with the disease. And in doing so, that enterprising town has set an example which is, no doubt, destined to be followed, and that at no very distant date, by every enlightened community throughout the land.

Although, with regard to Britain, Sheffield in this respect

occupies a position of splendid isolation, it does not do so when other countries are considered. In Austria (18), Vienna has recently followed the same course as Sheffield in applying compulsory notification to phthisis. And as far back as the year 1897, New York (19) became to America that pioneer which Sheffield now is to England. The far-reaching effect of the action taken at that time may be gathered from the fact that in that State alone over nine thousand cases of phthisis are now annually reported. It is to the knowledge thus acquired, and to the practical measures for dealing with the disease which have been founded upon it, that Biggs largely attributes the fall of 35 per cent. that has taken place in the mortality of tuberculosis there in recent years.

Whilst aiming at the alleviation of distress, our infirmaries and hospitals continue as of yore to pursue the even tenor of their way in contributing their quota to the spread of tubercular disease. Has it not too often proved the case that a patient who was taken into the hospital in order to be treated for a fracture or tumour has left it with the primary object secured but the unhappy proprietor of an infected lung? It has been left to France (20) to be the first to deal with this class of risk. Patients entering hospital in that country are now protected from the danger of being infected with Tuberculosis in this way. The excellent measure which secures this end will always be associated with the name of M. Combes, the late Prime Minister and Minister of the Interior. The permanent Tuberculosis Commission appointed by him decreed, in December 1903, *firstly*, that in no public hospital shall communication, direct or indirect, be permitted to take place between tubercular and non-tubercular patients; *secondly*, that tubercular patients shall not be admitted to general infirmaries, but shall be treated in hospitals set apart for their use. Special provision is made for those instances where in small towns only one hospital exists. In such cases the law allows tubercular patients to be admitted, provided always that a special ward, or if possible a special block, is reserved for their use. The prudence and desirability of these precautions must be apparent to all. And they naturally prompt the reflection, how long will it be before we in this country, at present content to follow so far off, obtain for our hospital patients that simple justice which these measures have secured for their more fortunate fellow-sufferers abroad.

We have not yet heard of the adoption in this country of such a word as phthisiophobia, but if there had been such a word already coined we would have certainly employed it to describe that dread amounting almost to panic which appears to have laid hold of the public mind in connection with phthisis in some

portions of the United States. This finds its expression in many ways, but particularly in the practice adopted by employers in certain districts in at once dismissing employees wherever these have been so unfortunate as to contract a cough which they do not speedily throw off; in the declaration, having all the force of law, issued by the Surgeon-General (21) of the Marine Hospital Service last year, which declares Tuberculosis a dangerous contagious disease, and debars aliens or immigrants suffering from it in any form from landing in any part of the States; in the municipal provisions secured by the Goodsell-Bedell Bill, which places in the hands of any Board of Superiors for the country or any Town board in New York State, power to veto the erection of a Sanatorium in the district over which it presides. This feeling of panic has reached that point, that the medical men, realising in its existence a source of public danger, called a meeting consisting of the leading physicians in the State to consider what measures should be taken to deal with it. On the proposal of Knopff, a strongly worded protest embodied in nine resolutions was unanimously passed and a copy sent to headquarters (22). In pleasing contrast to this picture, we quote the action of the New Mexico legislature who, recognising in all measures having for their object the restricting and limiting of the disease, and desirous of encouraging such efforts, have passed a statute providing that all properties used in connection with the erection of sanatoria, costing a sum of not less than £20,000, shall enjoy this special advantage that they shall be exempt from taxation for a period of not less than six years from their inception.

Proof that the New York Progressives (23) in Public Health matters have in spite of the apparent ascendency of the unreasoning public, for the time being been able to effect some little work in forwarding the cause of dealing with Tuberculosis, is to be found in the fact that not content with having turned the State insane hospital into a sanatorium, and supplementing the accommodation thereby provided by the addition of one hundred and ten tents, and thus placing at the disposal of its tubercular poor over four hundred and fifty beds, it has been decided to build a municipal sanatorium for incipient cases only, and to place it under the care of a board of guardians.

Undoubtedly much has been done during the last few years to provide for the needs of the tuberculous poor, yet notwithstanding what has been attained there are two classes of sufferers whose claims to assistance have until very recently remained ignored. We refer to young children and primiparous mothers respectively, the latter usually themselves little more than mere children. Germany (24) enjoys the honour of having given the

lead in this particular branch of philanthropy. In a palatial sanatorium recently opened at Beelitz by the German Empress, we find that a department containing thirty beds has been placed at the disposal of children. Provision of the same kind, but on an even more extensive scale, has been made at Hohenligchen in the Mecklenburg Forest by the German Red Cross Society, who have there erected a sanatorium exclusively for this purpose. It contains sixty beds and is supported purely by voluntary subscriptions. The cause of the young mother has given rise to a new society in Paris called La Femme Tuberculeuse (25). The society owns a small educative dispensary in the city, but its principal asset lies in the institution which is situated in the suburbs and contains a hundred and twenty rooms. Here may be accommodated the girl, the young mother and her child at a time when that help and shelter is most needed and therefore most welcome. When the scheme has been completed it will comprise a recruiting home in the country, where, after the patient has been fully instructed, she will go in order to complete her convalescence.

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OBSTETRICS

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The Bossi Dilator.—As was anticipated when the rapid termination of labour by Bossi's metal dilator began to be widely practised, various opinions have been forthcoming as to its usefulness and safety. The method would seem to have been little if at all used in France, and this fact has led POLLAK of Vienna to contribute an appreciative article on the value of the procedure to one of the Parisian journals (*Annales de Gynécologie et d'obstétrique*, Nov. 1904). Pollak points out that whatever views may be held as to the safety of Bossi's dilator, it must be granted that the obstetrician has in it a means of emptying the uterus in pregnancy by the natural passages in a period of time which can only be shortened by employing the vaginal Cæsarean section of Dührssen and Acconci.

There is one great objection to its use—the production of cervical lacerations. Anyone planning to employ Bossi's dilator must, therefore, have this risk in his mind, and must have thought out beforehand how best to avoid it. It is to be borne in mind, however, that all lacerations in such cases are not to be ascribed to the dilator; some are due to the rapid extraction of the child (forceps or version) which follows the dilatation. It is often a matter of no importance that the child should be delivered the very minute that the cervical canal is large enough to allow its passage; in many instances we may wait the descent of the head, and even the completion of the labour by the natural efforts, knowing that now we can in the case of the supervention of grave symptoms immediately terminate the labour. The lacerations which actually accompany dilatation with the Bossi may be divided into two groups. The first contains those caused by the two rapid stretching of the cervical tissues. These may undoubtedly occur, and they are difficult always to avoid; but they may be rendered much less likely by using an instrument which does not open up the cervix in the form of a square, but in that of a more or less complete circle (*e.g.* Frommer's or Knapp's), and by very carefully judging when it is safe to give another turn to the screw of the instrument. Since the resistance of the tissues of the cervix differs greatly in different cases, the safe rule is to wait until the resistance of the cervical ring ceases to be experienced, and never to

carry on the opening of the blades after the resistance has begun to be felt again. No exact period of time can be fixed, but the operator should have a clock or watch in sight. It is unnecessary, and often inadvisable, to complete the dilatation in 15 minutes; and in several of Pollak's cases from 50 to 65 minutes were allowed for a dilatation up to 8 cms. (3¼ in.). The other class of lacerations contains those due to perforation of the cervix with the points of the Bossi dilator. This risk applies specially to the cases in which the cervix is not taken up. To avoid this danger the cervix may be pulled down to the vulva, and the dilatation carried on under the control of the eye, and, if need be, of the free hand. The tips of the shields must be above the internal os, and their proximal ends outside the external os, otherwise it follows that the instrument will sink into the cervical tissues and cause deep grooves or furrows. These precautions, however, are not impossible conditions, and, if followed carefully, lacerations should be few in number. It is said that there are cases in which the cervical tissues are so brittle that they must tear when stretched; but surely in these instances the Bossi is not to be blamed for lacerating them, manual dilatation or other plans being equally likely to be followed by such results.

E. GUSTAV ZINKE (*American Journal of Obstetrics*, p. 653, November 1904) sums up adversely to the use of the Bossi dilator and instruments of its type. He uses unmistakable language, saying that "it will receive universal condemnation, and thus reach its final and well-deserved destination, the lumber-room of obstetric instruments." He employed it in one case, and there is nothing in the context to lead us to think that he had seen it used before he thus tried it. Here is the full report of Zinke's case. "The instrument was used with the greatest care, and according to every rule laid down, in the following case:—Patient aged 38; vii-para; pregnant six months; placenta prævia; duration of hæmorrhage four weeks, at intervals, and sometimes quite profuse; very anæmic and exhausted, but otherwise cheerful; cervix nearly effaced; os admits top of index finger, feels soft, and suggests dilatability. Bossi's dilator was introduced without the caps, as the opening of the os proved too small with them in position. Slow and gradual dilatation, alternated with relaxation, for about five minutes. Indicator showed 5 cm. dilatation, when a large rent occurred on the right side of the cervix; hæmorrhage quite profuse; patient was delivered by perforating the placenta, then version and extraction of the child. The rent was stitched with catgut. Hæmatoma and

sepsis developed, which prevented union of the laceration. Patient made a very slow recovery, and is still an invalid." The criticism which this report suggests is that it was not at all a suitable case for Bossi's dilator; the pregnancy being at the sixth month, and the fœtus therefore non-viable, it would have been well to have treated it as a threatened miscarriage. Further, to introduce the dilator without the shields, and dilate up to 5 cms. in "about 5 minutes," with intervals of relaxation, is hardly the method usually followed by operators who employ the "Bossi," and can scarcely be described as "slow and gradual dilatation."

It is in cases of eclampsia that Bossi's dilator still finds its greatest sphere of usefulness, and GELLI (*La Ginecologia*, Fasc. 22, p. 700, Nov. 30, 1904) adds another record to the already long list of cases successfully treated in this way. The patient was a i-para at the seventh month of pregnancy; she had headache, slight œdema, and albuminuria. She was purged and put on an exclusively milk diet, but, nevertheless, took three eclamptic seizures. She was given a hypodermic injection of morphia and chloral by the bowel; and a bougie was introduced into the uterus. The eclamptic attacks continued, but chloral and chloroform diminished their intensity. The quantity of albumen in the urine remained about the same. With the Bossi the cervix was dilated up to 6 cms.; then it was noticed that the fœtal heart had ceased, perforation of the cranium was performed, and the fœtus extracted by forceps. Three attacks occurred after delivery, but thereafter the patient made a rapid and complete recovery, the albumen gradually disappearing.

Physiology of the Placenta.—Upon this subject some interesting work has been done of late. Thus ROMOLO COSTA (*Annali di ostetricia e ginecologia*, p. 19, July 1904) comes to the conclusion that during pregnancy fat passes from the mother to the fœtus; that it does not make the passage in the form of neutral fats, even as fine emulsions, but probably is carried across in the form of a soap; and that in the placenta it is changed into neutral fats by the action of the villi. These conclusions are founded on an interesting series of experiments. RAINERI (*Annali di ostetricia e ginecologia*, p. 518, Nov. 1904) has made observations on the soluble ferments of the placenta and on the digestive powers of the organ. He shows that the constitution of the fœtal blood makes it necessary for us to believe that there is a selection made from the substances circulating in the maternal blood in the placenta. There do not exist in the placenta soluble ferments like those found in gastric digestion. The placental villi have a function not

identical with but analogous to that of the intestinal villi; in this sense only can the placenta be said to have a digestive power. MIRTO (*ibid.*, pp. 519 and 711) has found in some cases that the serum in the umbilical arteries had a greater toxic power than that in the umbilical vein, and he therefore concludes that the placenta has an antitoxic power, and that it can neutralise or transform toxic products coming from the fœtus to it. This antitoxic power was diminished in two cases of albuminuria, in one of which there was also eclampsia.

Specially interesting in their relation to eclampsia are ACCONCI'S experiments on the nucleo-proteid of the human placenta (*Annali di ostetricia e ginecologia*, p. 947, June 1904). He found that from an aqueous solution of placental pulp he could obtain a substance having all the reactions of an albuminoid body, and those, more particularly, of a nucleo-proteid; it contained phosphorus like all nucleo-proteids; and that both diseased and healthy placentas contained it in about the same amount. With this substance, which is insoluble in water and in solutions of chloride of sodium, but soluble in alkaline solutions, he experimented upon animals. Four placentas were used: one was quite normal and came from a normal labour; two showed infarcts and came from patients suffering from eclampsia; and one, with large infarcts, was from a case of albuminuria with tube casts and blood, but without eclampsia. From his experiments (on guinea-pigs and rabbits), Acconci came to the conclusion that the solution of placental nucleo-proteid, in doses that were not too small, had an evident toxic effect, but did not always kill the animal. Its action was more energetic and more immediate when injected directly into a vein, when from 10 to 20 c.c. would cause death. Sub-dural injections produced symptoms of irritation, but not convulsive seizures. This toxic action was evidently due to the grave lesions almost constantly found in the kidneys and liver (tendency to diffuse hæmorrhages). The lesions found when the solution came from the normal placenta were practically the same as those occasioned when the placentas from eclampsia cases were used; there was, however, a smaller mortality in the former case, but it is doubtful whether we can conclude that the nucleo-proteid of the healthy placenta is less toxic than that of the diseased organ. Pieces of syncytium passing from the placenta into the maternal circulation may carry the toxic nucleo-proteid with them; an antibody and a cytotoxine may form in the maternal blood, but if the syncytial fragments be numerous the antibody may be insufficient to counteract their toxic effect, and so changes may be set up in the kidneys and liver which end in eclampsia.

ABSTRACT OF ANÆSTHETICS, 1904

By D. C. A. M'ALLUM, M.B.,
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General Anæsthetics.—The question of accurate dosage of chloroform and the best means to attain that end have been prominent during the year.

A full discussion took place at the British Medical Association Meeting (*Brit. Med. Journ.*, 24th September 1904), and the addresses then given by Victor Horsley, Waller, and Dudley Buxton, may be taken as embodying the findings of the special committee appointed to investigate this important subject. These conclusions may be briefly summarised as—(1) That the best way to ensure safety during chloroform anæsthesia is by the continuous inhalation of a low percentage vapour. (2) That in the great majority of cases a 2 per cent. vapour is sufficient to induce and continue surgical anæsthesia. (3) That after the first incisions of the operation the percentage usually can be considerably lowered with safety and advantage. (4) That the Vernon Harcourt apparatus is a satisfactory method of obtaining these requirements. Buxton and Horsley agree in approving of this apparatus, but Waller very decidedly expresses his preference for the Dubois pump. The views of Buxton as an anæsthetist of high ability and enormous experience may be taken as the most valuable. In another article (*Med. Press and Circ.*, 1904, vii. p. 303) he amplifies his views expressed at the Association discussion. He points to the work of Embley and Rudolph, showing that vagal reflexes of the most dangerous character are not absent, and cannot be made so, even in profound anæsthesia; further, that reflexes producing dangerous symptoms are not necessarily fatal in light but adequate anæsthesia, but such reflexes are fatal when they arise during profound anæsthesia. That to such profound anæsthesia is due the post-anæsthetic collapse so often seen, the heart being exhausted and unable to rally after the operation owing to poisoning by the high percentage of the chloroform used during the operation. In his article in the *Med. Press and Circular*, the author insists on the importance of distinguishing between light anæsthesia and incomplete anæsthesia or "narcosis"; that probably the latter may account for fatalities recorded as having occurred when only a trifling amount of chloroform had been administered. Buxton admits that a higher percentage than 2 per cent. may be necessary with some patients or in certain operations. At the Association meeting discussion, and also in

important discussions on the same subject at the Royal Medical and Chirurgical Society and the Society of Anæsthetists, much conflicting opinion was expressed, but the general view appeared to be in favour of low percentage administration, though decidedly against the Vernon Harcourt apparatus as the best means of obtaining the desired result.

Buxton and Vernon Harcourt himself appeared to be the only anæsthetists who expressed complete satisfaction with the inhaler; it is perfectly evident from the remarks of others, and especially of such authorities as Hewitt and Silk, that the instrument has many disadvantages and difficulties.

It is evidently easily put out of order, induction of anæsthesia is tediously long, the anæsthesia obtained is frequently inadequate, and—most serious of all—the attention of the anæsthetist requires largely to be fixed on the apparatus and not on the patient. The one admitted advantage is that overdosage is almost impossible. The defence of its supporters that the difficulties and defects complained of are chiefly due to unfamiliarity with its working is decidedly strange, seeing that one of the chief claims by the inventor for its use is that it can be put into the hands of any inexperienced anæsthetist.

To sum up, it may be concluded that the advantages and increased safety of low percentage administration of chloroform are generally accepted, but a satisfactory means of obtaining such has yet to be discovered.

Every anæsthetist would welcome a compact, reliable and simply acting inhaler, by which he could determine the strength of chloroform vapour during administration, and increase it to any percentage required. It is apparent that the Vernon Harcourt instrument does not meet those requirements.

Sternberg (*N. Y. Med. Journal*, 13th August 1904) has a good practical paper on the technique of general anæsthesia under chloroform and ether. His remarks on the eye reflexes and cyanosis occurring during chloroform administration are excellent.

White (*N. Y. Med. Journal*, 27th February 1904) discusses the necessity for some reliable and unequivocal sign of anæsthesia. He points out some of the difficulties and fallacies underlying the eye reflexes: his remarks on this subject are of interest as being to some degree contradictory to those of Sternberg.

Fielden (*Med. Press and Circ.*, vii., 1904) differentiates between vomiting and regurgitation during anæsthesia. In the former the epiglottis is closed, and the vomited material cannot be drawn into the trachea and lungs unless it be allowed to remain in the mouth, when the first deep inspiration will cause it to be sucked in. In the latter, the epiglottis is open, and

there is nothing to prevent the regurgitated material from being inspired. As the condition of the stomach cannot be known, he recommends lavage immediately before operation. He records a case to show the value of this somewhat strong measure.

Villaneuva (*Semana Med.*, x., 1904) recommends subcutaneous injection of 400 gms. of salt solution the day before operation, as a good preventative of vomiting during or after operation. He has followed this plan for two years with much benefit, but cannot explain the rationale.

Heart Massage in Chloroform Syncope.—Keen (*Therap. Gaz.*, 15th April 1904) has an excellent and exhaustive article describing two cases of chloroform syncope in which heart massage was carried out, with full details of twenty-five other recorded cases.

One case (hysterectomy) was successful, the other (total laryngectomy) was unsuccessful. The two cases are highly interesting, and may be shortly described. The first was a case of fracture of the skull followed by aphasia, for which trephining was performed under ether and oxygen. The patient took the anæsthetic with great difficulty, and was more or less cyanosed during the whole operation. Subsequently squamous epithelioma of both vocal cords developed, entailing unilateral laryngectomy. The first part of the operation was done under local anæsthesia, then, because of great pain, chloroform was administered. There were great struggling and marked cyanosis, and the operation was completed with great difficulty. Some months later a total laryngectomy was done. Tracheotomy was performed, and chloroform administered by Trendelenberg's apparatus. Just as the operation was being finished, collapse suddenly came on with marked cyanosis. The operation and the anæsthetic were stopped, and the usual means of resuscitation tried in vain. In two or three minutes the heart ceased to beat, and the patient apparently was dead. Means for resuscitation were kept up for ten minutes, and then Keen opened the upper abdomen, put in one hand and massaged the heart between his two hands for half an hour, but without success.

The second case was one of carcinoma uteri, for which hysterectomy was done. When the operation was nearly finished, sudden collapse came on. The usual means for restoration were tried for two or three minutes in vain. Then the heart was laid bare by resection of the fourth and fifth ribs, the pericardium opened, one hand inserted, the heart seized

between the thumb and fore and middle fingers on the anterior and posterior surfaces, and strong and rhythmical pressure made for about one minute, when the heart began to pulsate. Then on the action becoming weak again, the massage was repeated for about one minute more, then the heart's contractions became regular, the pulse returned, and the patient was saved.

The author gives a good historical account of the procedure, which was first advocated by Schiff in 1874. Many other workers followed with experiments on animals under various conditions.

He lays stress on the view of Crile ("Blood Pressure in Surgery") that resuscitation of the heart alone is not sufficient. Not only must the heart be made to beat, but the respiratory and vaso-motor centres must be stimulated into activity. Heart massage has been performed in 27 cases, of which only 3 have been successful.

There are three methods: (1) by compression of the heart between the hands, one outside the chest, the other directly on the heart after abdominal section, but without the pericardium being opened; (2) the same as the previous method, but with the pericardium being opened, and the heart seized inside; (3) resection of ribs, incision of the pericardium, and the heart seized in one or both hands and rhythmically compressed.

The cases described in the article are not all examples of chloroform syncope; some were cases of pure surgical shock after severe accident. Two of the successful cases were due to collapse under ether anæsthesia.

Kemp and Gardner (*N. Y. Med. Journal*, 7th May 1904) discuss the same subject. They give credit to Schiff as the first to introduce the proceeding, but state that Prus was the first to use it on the human subject.

They detail their experiments, the methods of massage and their limitations, and do not altogether approve of resection of the ribs and opening of the pericardium. The article is not completed.

Kocher ("Text-Book of Surgery") also discusses the subject, and other papers are: Boucart, *Rev. Med. de la Suisse Rom.*, 1903, xxiii. p. 637; Keen, *Proc. Phila. Co. M. Soc.*, 1904, xxv. p. 73; King, *Americ. Med.*, 1904, vii. p. 630; D'Halluin, *Presse Méd.*, 1904, p. 345; Starling, *Trans. Soc. Anæsth.*, vol. vi.

Delayed Chloroform Poisoning.—In the August number of this Journal there was published a most important and carefully written contribution on this difficult subject by H. J. Stiles and Stuart M'Donald. A full historical account of previous work

is followed by a detailed description of the symptoms and signs of the condition, elaborate pathological details, an account of certain experiments, and a thorough discussion of the possible causation. Treatment is regarded as of little or no use. Though the question of acetonuria is discussed, no special mention is made of its occurrence in the cases detailed. From a practical point of view, the causation and possible anticipation and prevention, or avoidance, of so grave a condition are of the utmost importance. Unfortunately, it is these very points that the authors are obliged to leave undecided.

The various possible causes, such as sepsis, fat embolism, carbolic or iodoform poisoning, after due consideration are put aside as insufficient, and to the chloroform, and possibly to its chlorine constituent, the condition is ascribed.

The rarity of the condition, at least in any marked degree, leads the authors to incline to some obscure idiosyncrasy to the action of chloroform as the predisposing cause, one that with our present knowledge cannot possibly be discovered before the actual administration of the drug. They cannot altogether accept Guthrie's theory that the liver is already fatty in these cases, and that the chloroform acts as "the last straw," so to speak, nor do they agree with his statement that the fatty changes in the liver are of a peculiar and distinct type. The practical conclusion appears to be that in all cases where there is the slightest ground for belief that the liver is diseased, in acute infective conditions, and in certain physical states attended with much destruction of red blood corpuscles, chloroform cannot be considered a safe anæsthetic, and ether or some other anæsthetic ought to be administered, or local anæsthesia employed.

In connection with this subject is a long and instructive article by Brackett (*Boston Med. and Surg. Journal*, 7th July 1904) on "Acetonuria associated with death after anæsthesia."

A large number of cases is detailed, the symptoms and post-mortem appearances being practically the same as those described by Stiles and M'Donald.

In a number of these cases no anæsthetic at all had been administered, and, in interesting contrast to the above article, when an anæsthetic was used it was invariably ether with one exception, (Case No. iv.), where nitrous oxide was employed. Another interesting point is that several of the cases were suffering from varying forms of infantile paralysis with marked muscular atrophy. The conclusions of the author may be briefly stated.

(1) The fact that several cases had not had any anæsthetic, and had not undergone any operation, indicates that these two

factors cannot be regarded as the sole causes of the condition; (2) ptomaine poisoning, and nervous influences, such as fright, or change of diet, cannot be regarded as marked causes, though each may exert some influence; (3) the fact that four fatal cases were cases of infantile paralysis with extensive muscular atrophy seems to indicate some obscure connection or influence, though the author cannot say what it may be.

No mention is made of sepsis, fat embolism, iodoform, or carbolic poisoning or syphilis as possible causes, nor are any details given as to the duration of anæsthesia or the amount of anæsthetic used.

As to treatment—the ordinary stimulants such as alcohol, strychnine, etc. proved useless.

Large doses of bicarbonate of soda, with the idea that the condition is due to acid auto-intoxication, seemed to be the only remedy that proved of any benefit. In some cases large subcutaneous saline injections seemed to be beneficial, though only temporarily.

In the domain of dental anæsthetics, mention only can be made of a good practical paper by Carter Braine (*Brit. Dent., Journal*, October 1904), and another by Freeman Allen (*Dent. Cosmos*, September 1904). Both are well written and instructive.

New Books and New Editions

Tuberculosis and Acute General Miliary Tuberculosis. By Prof. Dr G. CORNET, of Berlin. Edited with additions by WALTER B. JAMES, M.D., Professor of the Practice of Medicine in Columbia University, New York. "Nothnagel's Encyclopædia of Practical Medicine." 8vo, pp. 806. Philadelphia, New York, London: W. B. Saunders & Co. 1904. Price 21s.

IT is a great satisfaction to have Professor Cornet's work in a form accessible to English readers, for there is probably no book which deals so fully and so adequately with tuberculosis. The chief merits of the work are its completeness, and the calmly judicial spirit in which it is written. Almost everything that can be said about the pathology and treatment of the disease is included, and the points which have come to light since the book was first published have been incorporated by the distinguished American who has edited it.

But the other merit which we have mentioned is of perhaps

even greater importance. So many remedies have at one time or another been proposed for tuberculosis, and so much has been written for and against them, often in a keenly partisan spirit, that it is difficult to preserve an attitude of fairness to their various claims. Moreover, it is only a man of wide and ripe experience who is capable of estimating the effect of remedies in so Protean a disease, and therefore it is the more satisfactory to have Professor Cornet's views, expressed, as they are, in so calm and impartial a way.

The original plan of the work has not been departed from. The most important additions which have been made are sections dealing with the relations of human and bovine tuberculosis, the production of artificial immunity, and an interesting chapter by Dr E. R. Baldwin on the chemistry of the tubercle bacillus.

In so monumental a work it would be idle to select special sections for praise or blame; the wonder is that the treatment of the whole is so uniform, and the standard so high.

The translator and publishers have alike done their work well, and the volume is a credit to all concerned, and is likely to be of great usefulness.

Traité de Médecine Opératoire et de Therapeutique Chirurgicale, publié sous la direction de Paul Berger, Professeur à la Faculté, et Henri Hartmann, Professeur Agregé. Tome III. *Chirurgie Orthopedique.* Par le Professeur PAUL BERGER et le Docteur S. BANZET. Pp. 624. Paris: G. Steinheil, 2 Rue Casimir-Delavigne. 1904. Prix 20 francs.

THIS treatise is devoted to the consideration of surgical treatment, and does not deal with anatomy and pathology, nor the symptoms of disease, except in so far as is necessary to elucidate the methods of treatment. It is designed for the use of those engaged in actual practice, and should prove most useful, occupying as it does a position quite distinct from the general treatises on Surgery, and the more strictly anatomical books on operative surgery. Of the present volume on Orthopedic Surgery we can speak in high praise. The illustrations, which number nearly 500, are good, and most helpful to the ready understanding of the text; more especially in the section which deals with orthopedic gymnastics.

The treatment of deformities of the "motor apparatus" only is considered, and the authors have, very rightly, we think, left out of consideration the treatment of tuberculosis of bones and joints, and have dealt only with that of the deformities resulting in the late stages. And here we may say that we are in accord

with the view expressed as to the necessity of caution and discretion in dealing with these cases.

The first part of the book, pp. 150, deals with the deformities of the head and trunk, chiefly with scoliosis, and the methods of exercise, manipulations, etc., are fully discussed, and the vexed and much misunderstood question of the use of mechanical supports is carefully and judiciously treated.

The upper extremity has 130 pages devoted to it, and the operative and other treatment of stiff joints, paralytic deformities, etc., are fully considered.

Of special interest are the cases described of cure of cicatricial contractions of the arm and hand by means of flaps of integument partially raised from the trunk and applied over the rawed cicatricial area, but left attached to their original situation by a pedicle. This method, though of course not new, has been adopted for some time by Professor Berger, and the technique has been greatly improved by him. Minute instructions are given as to details of the operation, and the cases cited are highly satisfactory. The use of Thiersch's grafts to replace cicatricial tissue is condemned as useless, but we think sufficient notice is not taken of the good results obtained by Krause and others of replacing cicatricial tissue by wholly detached grafts, including the whole thickness of the skin, and sewed on to the area from which the cicatrix has been removed. This latter proceeding does not make so great a demand on the surgeon and the patient.

The section dealing with the lower extremity is very full and satisfactory, and special care is taken with the description of operations on tendons for the cure of deformities. In the chapter dealing with talipes no mention is made of Ogston's method of enucleation of the bony kernels of the tarsus, probably because the results to be obtained are not sufficiently ascertained as yet. Otherwise the subject is fully treated.

What we consider the distinguishing features of this book are the fulness with which operations are described, and the pains the authors have taken to bring their knowledge and experience to bear on the question of the selection of treatment to suit particular cases.

Atlas and Epitome of Operative Gynæcology. By Dr OSKER SCHAEFFER. Translated by J. CLARENCE WEBSTER. New York: Saunders & Co.

THIS atlas will be found useful by those who after a considerable experience in operative gynæcology desire to compare various

methods. It cannot be said that it will be of much value in teaching the novice, for admirable though the plates are, they are in the majority of instances somewhat confusing even to one conversant with operative methods. The vaginal operations, as one would expect, are particularly difficult to follow. Much attention is given to hysterectomy, both abdominal and vaginal, but curiously enough abdominal ovariotomy is entirely omitted. The vaginal method (which is unpopular in this country) alone is depicted.

The surgical anatomy is poorly described, and the terms parametrium and perimetrium are used in a most confusing manner. Some of the plates will be of much value to teachers to copy as wall diagrams, but as a whole the atlas is disappointing and not of the same merit as the previous volumes of the series.

Practical Nursing. By ISLA STEWART, Matron of St Bartholomew's Hospital, London, and HERBERT E. CUFF, M.D., F.R.C.S., Medical Superintendent, North-Eastern Fever Hospital, Tottenham, London. A new edition. Edinburgh and London: William Blackwood & Sons. 1904.

MANY books have been written to teach nurses their duties. Year after year the profession of nursing is taking a more assured position. Training is more prolonged, departments are more specialised, and books are being written giving special instructions not only in the more specialised branches of obstetrics and mental diseases, but even for the nursing of eye cases and fever cases. It may result in each special branch of medicine and surgery being furnished with special nurses. So long as a nurse is ensured a full and complete general training first in a general hospital, the additional special training may do no harm, and may do good. The great risk is the fostering of conceit, which may make the nurse a little uncomfortable for the general practitioner.

The Matron of St Bartholomew's is one of the acknowledged heads of the nursing profession in Great Britain. Her energy, sound sense, and practical knowledge have, with the aid of an enlightened and liberal Committee, made the Nursing School of St Bartholomew's second to none in the world so far as we know. The practical part of the book is from her pen, and is admirable. Simply written in plain language, even the youngest probationer must be able to understand every word of it. Full of sound sense and experience, it gives the information the

nurse needs, wise counsel as to ward and sick-room, baths and diet, and does not in any way trench on the province of the physician, or tend to make the nurse think that she is only a less instructed medical woman.

The more strictly medical chapters, which briefly describe certain diseases and the special nursing of them, are also well done. Descriptive, without being too technical, they will inform the nurse what she should know without puffing her up with knowledge that would not edify.

An excellent book.

A Manual of Fever Nursing. By R. W. WILCOX, M.A., M.D., LL.D. Pp. 236. Philadelphia: P. Blakiston's Son & Co. London: Rebman, Ltd.

IN this volume Dr Wilcox has published lectures on fever nursing, delivered at the St Mark's Hospital, New York. He deals with practically all febrile diseases, giving a clearly written account of each, with practical hints as to the nursing required. Perhaps the book is, if anything, too full for the ordinary nurse, but it is most easy to read, and can hardly fail to be of use in preparing for nursing examinations. We can conscientiously recommend it.

The Modern Nursing of Consumption. By Dr JANE H. WALKER. Pp. 46. London: Spottiswood & Co., Ltd. Price 1s.

THE above is not the production of an ambitious writer. There is nothing pretentious in this little book. It contains some information which should prove useful to nurses—fully qualified or otherwise—who may be contemplating devoting their energies to the nursing of consumptive patients either in Sanatoria or private surroundings. To such we can certainly recommend it.

Home Nursing and Hygiene. J. WALLACE ANDERSON, M.D., F.F.P.S.G., and GEORGE H. EDINGTON, M.D., F.F.P.S.G. Pp. 156. Glasgow: St Andrew's Ambulance Association. 1904.

THIS is the official text-book of the St Andrew's Ambulance Association on the subject of Home Nursing and Hygiene. It contains ten chapters, of which one, dealing with surgical nursing

and bandaging, is by Mr Edington, while the remainder are by Dr Anderson. It is an excellent little book, and contains a great deal of useful information in small bulk. The directions given for administering food and medicine, for taking temperature, for changing clothing and bedding, and for the sundry other duties that have to be attended to in the sick-room, are practical and intelligible. Altogether we can cordially recommend the work as likely to fulfil admirably the purpose for which it is published.

Mental Defectives: Their History, Treatment, and Training. By MARTIN W. BARR, M.D. Pp. 368, 53 plates. Rebman. Price 17s. 6d. net.

DR BARR is well known as the chief physician of the Pennsylvania Training School for Feeble-minded Children, and the present volume is the outcome of nearly twenty years' experience. One may therefore expect to find in its pages a large amount of valuable information, and this expectation, we may say at once, is justified by the contents. Dr Barr has succeeded in collecting a great deal of interesting material, in combining this with the results of his own experience, and in presenting to the public a treatise, in many respects excellent, on the subject of mental defectives. Nevertheless, we must confess that we have read his book with a certain degree of disappointment. It seems to us that Dr Barr has failed to keep quite clearly before his mind the public whom he is addressing. He tells us in his preface that he is writing primarily for anxious parents and earnest teachers, rather than for the scientist. If so, we think that such subjects as Echolalia and Adenoma Sebaceum scarcely required to be treated at such length, each with a chapter to itself; while the chapter on Training, excellent as it is, might have been amplified considerably. Chapters might also have been added on the home care of feeble-minded infants, and on the slighter mental defects which come under the notice of teachers in the ordinary schools. On the other hand, from the physician's point of view, the absence of all reference to pathology and morbid anatomy is a distinct defect, and the discussion of diagnosis and of the characteristics of the various forms of idiocy and imbecility is very insufficient.

The volume includes a very interesting chapter on History, which extends to fifty-four pages; a chapter on Classification, which is chiefly a resumé of the systems proposed by previous writers, with a tabular "educational classification" by the author; a chapter on Etiology, which contains a table of

3050 cases drawn up for comparison with tables of cases in the Royal Albert and the Darenth Asylums. A short chapter on Diagnosis is followed by one on Training and Treatment, to which we have referred. As one would expect of an American, Dr Barr speaks with great appreciation of the value of the Kindergarten system in the training of the feeble-minded. The Lloyd system he also finds of great value.

With regard to surgical interference, craniectomy is condemned, and the surgical treatment of epilepsy has not been found encouraging. The surgeon will, however, find employment in the operation of asexualisation, which is advocated for idiots of both sexes.

Further chapters deal with the principal varieties of mental defectives (cretins, epileptics, microcephalics, etc.), and a considerable amount of space is devoted to condensed and not particularly readable histories of illustrative cases. It is interesting to note that Dr Barr finds the Mongolian type in only .09 per cent. of his cases, while in this country Mongols number about 3 or 4 per cent. of cases in public institutions.

The book is well got up and copiously illustrated. It has a good index, and a bibliography which extends to nine pages. The author has evidently taken pains to make the volume useful as a work of reference, and if we have found it in some respects open to criticism, still we hope that Dr Barr will some day embody his experience in a more scientific work addressed to the members of his own profession.

A Text-Book of Materia Medica, including Laboratory Exercises in the Histologic and Chemic Examination of Drugs for Pharmaceutic and Medical Schools and for Home Study. By ROBERT A. HATCHER, Ph.G., M.D., Instructor in Pharmacology, Cornell University Medical School, New York; and TORALD SOLLMANN, M.D., Associate Professor of Pharmacology and Materia Medica, Western University, Cleveland, Ohio. Pp. 411, illustrated. Philadelphia, New York, London: W. B. Saunders and Company. 1904. Price 10s. net.

THIS book is divided into three parts: (1) "Systematic Study of Crude Drugs"; (2) "Plant Histology"; and (3) "Chemic Exercises in Materia Medica"; with an Appendix, containing Reagents for Histology, Posological Table, Glossary of Medical Terms, and an Index.

This is a well-written book, and contains much interesting and useful information. It can never serve the purpose of a

"*text-book*" for students in this country, for it is based on the Pharmacopœia of the United States of America, which differs in many respects from the British Pharmacopœia. Nevertheless it is a useful book. The description of drugs is generally very accurate, and the names of officinal plants are much more accurate than what we find in most works on Materia Medica. At page 78 there is a curious but very common mistake in describing the under surface of coca leaves, where it speaks of the "two lines parallel to mid-rib." These well-known lines are anything but *parallel*. The book is well illustrated.

List of Books Received

From H. K. Lewis.

Enlargement of the Prostate. By C. W. Mansell Moullin. 3rd Ed. Price 6s.

Deaths in Child-bed: A Preventable Mortality. By W. Williams. Price 2s. 6d.

Medical Electricity. By Lewis Jones. 4th Ed. Price 12s. 6d.

Æquanimitas and other Essays. By William Osler. Price 7s. 6d.

Landmarks and Surface Markings of the Human Body. By Louis Bathe Rawling. Price 5s.

From J. Wright & Co.

An Introduction to Dermatology. Third Edition. By Norman Walker. Price 9s. 6d.

Diseases of the Ear, with Stereoscopic Photographs. By J. Kerr Love. Price 25s.

Meals Medicinal with "Herbal Simples." By W. T. Fernie. Price 9s.

From Rebman & Co., Ltd.

Syphilis and Gonorrhœa. By C. F. Marshall. Price 8s.

The Practice of Obstetrics. By J. Clifton Edgar. Price £1, 10s.

Diseases of Women. By T. Bland-Sutton and Arthur E. Giles. Price 11s.

Surgical Anatomy of the Head and Neck. By J. Deaver. Price £2, 12s. 6d.

Text-Book of Histology. By Dr Philipp Stöhr. Edited, with Additions, by Dr Alfred Schaper. Price 14s.

Light Energy: Its Physics, Physiological Action, and Therapeutic Applications. By Margaret A. Cleaves. Price 21s.

Toldt's Anatomy. Part VI. Neurologia. Price 16s. 6d.

Mental Defectives: Their History, Treatment, and Training. By Martin W. Barr. Price 17s. 6d.

Text-Book of Human Physiology. By Albert P. Brubaker. Price 17s. 6d.

Bright's Disease and Diabetes. By James Tyson. Price 17s. 6d.

From W. B. Saunders.

Clinical Diagnosis. By L. Napoleon Boston. Price 18s.

A Text-Book of Materia Medica. By Robert A. Hatcher and Sollmann.

Gall-Stones and their Surgical Treatment. By B. G. A. Moynihan. Price 17s.

Saunders' Medical Hand-Atlases. General Pathologic Histology. By Hermann Dürck.

Diseases of the Liver. By H. D. Rolleston.

From Longmans, Green & Co.

A Text-Book of Medical Practice. Edited by William Bain. Price 25s.

From Henry Kimpton.

Diseases of the Heart. By Edward Henry Colleck. Price 7s. 6d.

From W. Blackwood & Sons.

Practical Nursing. By Isla Stewart and Herbert E. Cuff. Price 5s.

"The Medical Times."

The Chief Operations of Ophthalmic Surgery. By Harold B. Grimsdale. Price 5s.

From W. & A. K. Johnston.

Manual of Gynecology. By D. Berry Hart and A. H. Freeland Barbour. 6th Ed. Price 21s.

From Archibald Constable & Co.

The Surgery of the Diseases of the Appendix Vermiformis and their Complications. By Battle and Corner. Price 7s. 6d.

Clinical and Pathological Observations on Acute Abdominal Diseases. By Edred M. Corner. Price 3s. 6d.

From Masson et Cie.

Thérapeutique des Maladies de la Peau. Par Leredde.

From Frank F. Lisiecki.

The Surgical Treatment of Bright's Disease. By George M. Edebohls.

From Cornish Brothers.

The Sterilisation of the Hands. By Charles Leedham-Green. Price 2s. 6d.

From J. & A. Churchill.

Urine Examination Made Easy. By Thomas Carruthers. Price 1s. 6d.

From the Scientific Press.

The Modern Nursing of Consumption. By Jane Walker. Price 1s.

From J. B. Lippincott & Co.

International Clinics. Edited by A. O. J. Kelly. Vol. iii. 14th Series.

From William Green & Sons.

Guide to Anæsthetics. By Thomas D. Luke. 2nd Ed. Price 5s.

Manual of Antenatal Pathology and Hygiene. "The Embryo." By J. W. Ballantyne. Price 21s.

From Henry J. Glaisher.

X-Rays: Their Employment in Cancer and other Diseases. By Richard J. Cowen. Price 2s. 6d.

A Short Essay on Insanity. By Charles Williams. Price 1s.

From John Bale & Son.

Patent Foods and Patent Medicines. By Robert Hutchison. Price 1s.

The Ambulance in Civil Life. By Richard Harrison.

From G. Steinheil.

Traité de Médecine Opérative et de Thérapeutique, etc. Par Prof. Paul Berger et le Docteur S. Banzet. Price 20 francs.

Electricité Médicale. By H. Guilbemiont. Price 10 francs.

Anatomie des Membres, Dissection, Anatomie Topographique. By Charles Dujarier. Price 15 francs.

Travaux de Chirurgie, Anatomo-Clinique. Henri Hartmann. Price 15 francs.

Massage des Membres. Le Docteur Dagron. Price 12 francs.

L'Œuf Humain et les Premiers stades de son développement. By J. Potocki et A. Branco. Price 10 francs.

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THE SCOTTISH
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ON THE PRINCIPLE OF REST IN THE TREATMENT OF GASTRIC ULCER[1]

By FRANCIS D. BOYD, M.D., C.M.G., F.R.C.P.,
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THE immediate treatment of acute gastric ulcer, with or without hæmatemesis, resolves itself into the most desirable method of obtaining physiological rest for the stomach, and thus permitting healing of the ulcerated surface. It is a striking fact how unsatisfactory the treatment of gastric ulcer often is in private practice, as compared with the results obtained in hospital in the same class of patient. The sufferer will not recognise the necessity for complete physiological rest, and what was at the outset an acute and curable condition may become chronic. In the Edinburgh hospitals it has long been the practice to carry out the rest cure by means of rest in bed and rectal alimentation. The value of rectal alimentation is a question which at present seems to demand further consideration. A resting adult requires on an average two thousand calories per diem to maintain the nutritive balance. Leube placed the value of rectal absorption at 500 calories, Edsall and Miller have recently shown that in cases under their care the value was between 200 and 300 calories, an amount quite insufficient to keep the patient in nutritive balance. Rectal alimentation must therefore be considered partial starvation. Has it any disadvantage? It was believed that rectal alimentation increased gastric acidity. Bourget

[1] The analyses in this paper were done in the Laboratory of the Royal College of Physicians of Edinburgh.

discards it on this account, but, on the other hand, the observations of Zarko go to show that under rectal alimentation gastric acidity is decreased. There is, however, this very decided disadvantage, in that under rectal alimentation there is a very marked increase in intestinal putrefaction. It may be taken that the proportional excretion of conjugated sulphuric acid in the urine is a measure of the putrefactive decomposition of albumen. In health the excretion of ethereal or conjugated sulphuric acid amounts to 10 per cent. of the total sulphates in the urine. Under rectal alimentation the proportional excretion of conjugated sulphuric acid is markedly increased, a sure sign of putrefactive decomposition with possible auto-intoxication.

The following figures show the sulphuric acid excretion in three cases under rectal elimination :—

	Total Sulphates.	Ethereal Sulphates.	Proportion of Ethereal to Total.
I.	0.3261 grm.	0.2437 grm.	74 per cent.
II.	0.8755 „	0.6627 „	75 „
III.	0.4978 „	0.2163 „	43 „

It is a popular belief that substances injected into the lower bowel are absorbed below the ileo-cæcal valve, but this is by no means the case. Particles injected into the large intestine may under favourable conditions reach the stomach. Gützner has shown that if starch emulsion be injected into the rectum along with normal saline solution, the starch can be washed out of the stomach four to six hours afterwards. These results have been disputed by other observers, but the bulk of the evidence seems to show that material injected into the rectum can pass upward to the stomach either by recurrent peristalsis, or more probably by the action of the surface epithelium of the intestine. It is therefore probable that rectal alimentation may materially interfere with gastric rest. Clinically one frequently finds considerable pain and vomiting following the administration of nutrient enemata.

The treatment of acute gastric ulcer can be carried out with benefit to the patient in the majority of cases, without the use of rectal alimentation. The treatment is begun by giving

a mild but efficient aperient. No food is given by the mouth during the period of physiological rest of the stomach. Every six hours a pint of warm normal saline solution is syphoned into the bowel by means of a soft catheter and a filter funnel. There is no difficulty in the absorption of saline solution by the bowel, and the craving for water, which the sufferer from gastric ulcer so frequently exhibits, is obviated. If there be irritability, a little morphia may be introduced into the rectum, but this is usually unnecessary. During the period of rest no fluid should be swallowed. One is aware that such a high authority as Riegel allows ice to be sucked to quench thirst during rectal feeding, but this is to be deprecated, especially if there be gastric hæmorrhage. Water is not absorbed by the stomach, and must be passed on for absorption by the intestine; peristalsis is thus set up, and gastric rest interfered with. In carrying out the rest cure, the care of the mouth is of the utmost importance. The teeth are frequently bad and the mouth in a septic condition. Salivation may be marked, and the septic and irritating secretions of the mouth being swallowed, gastric irritation is kept up. When the mouth is septic it is one's experience that notwithstanding rectal alimentation—hæmatemesis and epigastric hyperæsthesia will persist until an improved condition of the mouth has been obtained. It is therefore always advisable to prescribe an antiseptic mouth wash, and to warn the patient to refrain as far as possible from swallowing the secretions of the mouth.

In simple gastric ulcer, if rest be efficiently carried out, all pain and epigastric hyperæsthesia should disappear in twenty-four, or at most forty-eight hours. The persistence of these symptoms after three days indicates that the healing process is not going on, and that, most probably, there are adhesions.

The period of complete rest should extend over four to six days. After this, milk in small quantities may be given. It is unnecessary to peptonise the milk, but it should be diluted with water, and a little bicarbonate or phosphate of soda added. If desired, the amount and consistency of the curd may be diminished by precipitating out the lime salts by treatment with citrate of potash. At the end of the second week the patient is able to take sufficient milk to maintain nutritive balance, and the diet is gradually increased till at the end

of four weeks an ordinary convalescent diet can be taken without any discomfort.

In the last twelve cases of gastric ulcer treated in this way, special note has been taken of the patient's subjective symptoms. Towards the end of the rest period there has been some complaint of hunger, but not more so than in the case of any patient on rectal alimentation. If the saline solution was given slowly and retained, there was no complaint of thirst. Most of the patients had a feeling of well-being, and an absence of gastric pain, "feeling, in fact, more comfortable than for years." This is not always the case in treatment by rectal alimentation, possibly due to auto-intoxication from the increased intestinal putrefaction which is present.

The simplicity of the method is a distinct advantage over rectal feeding. Nutrient enemata, if they are not to be worse than useless, require careful preparation.

The metabolism under gastric rest shows points of interest. The nitrogen estimations by Kjeldahl's process which are given in the accompanying table were made by Dr Jean Robertson, who is at present working in the laboratory of the Royal College of Physicians on the question of metabolism in rectal alimentation.

Date.	Urine.		Nitrogen Excretion.		Nitrogen of Food.	Chlorides of Urine.		Weight.
	Amount in c.cm.	Specific Gravity	Percentage of Urine.	Total Excretion.	In Grammes.	Per Cent.		
Jan. 27	1600	1029	0.7424	4.8784	...	0.4	6.4	7st. 1½lb.
„ 28	1500[1]	1019	0.3588	7.464[2]	...	1.19	17.85	
„ 29	1025	1025	0.3448	5.172	...	1.26	12.905	
„ 30	1600[1]	1025	0.356	6.631[2]	...	1.34	21.44[3]	
„ 31	500[1]	1019	0.356	4.0556[2]	1.63	0.65	3.25[3]	6st. 13½lb.
Feb. 1	500	1029	0.5856	2.928	2.442	1.26	6.30	
„ 2	1000	1029	0.412	4.12	2.452	0.98	9.8	

The table shows that the amount of urine excreted kept about normal for a healthy adult. The nitrogen excretion is the excretion of starvation of a fairly well-nourished person.

[1] Same urine passed with contents of bowel.
[2] N. of bowel contents added to urinary N.
[3] Under actual amount as loss of urine.

with considerable body fat, and closely corresponds with the excretion in the case of Succi observed by Luciani, and of Jacques observed by Paton and Stockman.

The patient, 44.7 kilos in weight, had an average daily loss of 5.9 grammes N., equivalent to 36 grammes of proteid, or 1.2 grammes of proteid per kilo of body weight. It is usually conceded that the loss of weight in acute inanition is 1 to 1.5 % of the body weight. In a series of ten cases treated in this way, the average loss of weight has been 1 lb. per diem, an amount corresponding to what one would have expected in starvation. A notable point is the excessive excretion of chlorides due to the large absorption of Nacl. from the bowel. This must have thrown considerable strain upon the kidneys, and, though no albuminuria resulted, it points to the necessity of diminishing the quantity of salt in the injections.

The treatment of gastric hæmorrhage, when the hæmorrhage is not violent or repeated, is simply the treatment of acute gastric ulcer. Gastric rest is obtained by the complete cessation of all nourishment and all fluid by the mouth. Severe or repeated hæmorrhage may call for more active measures. Of the drugs that have been used, most benefit will be obtained by morphia hypodermically, and adrenalin by the mouth.

As to the question of lavage, the arguments against it are the dangers of possible perforation and the disturbance of clot formation in the bleeding vessel. The dangers of perforation, if lavage is judiciously carried out, are negligible. If hæmorrhage into the stomach is actually in progress, the benefits of lavage more than counterbalance the dangers of the disturbance of clot formation. The presence of blood in the stomach induces vomiting, which is far more likely to disturb clot formation than carefully carried out lavage. Again, the presence of blood in the stomach, if it do not induce vomiting, must induce active peristaltic movements, and thus interfere with rest and clot formation. Lavage, then, has proved in the writer's experience distinctly beneficial. The water used should be of a temperature of 104° to 105°; iced water, which has been recommended, may accentuate shock, and is not so beneficial in checking hæmorrhage.

The question of surgical interference in gastric hæmorrhage is one which has given rise to considerable discussion in the last few years. A single severe hæmorrhage may threaten the patient's life, and even prove fatal; but Bramwell's statistics show that, at least in Scotland, gastric hæmorrhage is not nearly so frequently fatal as is alleged by some observers.

The principles which guide the surgeon in operating for hæmorrhage in general surgery is that he may control the bleeding vessel. An operation for a single gastric hæmorrhage would seem a logical proceeding if this principle could be carried out, but in practice we find that a search for the bleeding vessel is not advocated by those surgeons who have had the largest experience of operation for gastric hæmorrhage. It is found frequently impossible at the time of operation to localise the bleeding point; there may be more than one; in fact, profuse gastric hæmorrhage may be due to oozing at various points. It is therefore not considered expedient to search for the bleeding vessel, but a simple gastro-enterostomy is advised to give gastric rest. It is difficult for the physician to see how gastro-enterostomy can, under those circumstances, give more complete rest to the stomach than a carefully carried out course of starvation or rectal alimentation, with possibly lavage. One cannot help thinking that if gastric rest were more thoroughly carried out by the physician, the patient would be saved the dangers of an operation under circumstances which are not conducive to a satisfactory result. The statistics of the Boston City Hospital and Massachusetts General Hospital (recently published by Lund, Joslin and Murphy), show a mortality of 100 per cent. in ten operations for gastric hæmorrhage.

Repeated hæmorrhage from chronic gastric ulcer calls for surgical interference on the same principles and under similar conditions as guide the physician in advising surgical treatment of chronic gastric ulcer.

Chronic gastric ulcer with pyloric stenosis is a condition which, as a rule, gives a clear and distinct disease picture. The sufferer has usually the pinched appearance of the chronic dyspeptic, and may be extremely emaciated. There is a history of dyspepsia, with pain which has lasted for a more or less prolonged period, and frequently a history of hæmatemesis or

melena. The symptoms may have been insidious in the onset, and vomiting, at first infrequent and giving relief, gradually becomes cumulative in type and the patient seems to vomit everything which is taken. The skin is dry, and there is a great complaint of thirst. On examination the stomach is found dilated, and frequently displaced. The lesser curvature may be at or about the level of the umbilicus, while the greater curvature is in the pelvis. On palpation splashing is easily elicited, and visible peristalsis may be excited when the abdomen is handled; the peristaltic movements rendering the stomach plainly visible through the thin abdominal wall. There is marked gastric motor insufficiency with the accompanying signs of fermentation. If the stomach be washed out in the evening, and a meal given, the remnants of the meal can be found in the stomach in the morning. The stomach contents show increased acidity, and usually abundant free hydrochloric acid, and the presence of organic acids. Free hydrochloric acid is not always present in any considerable amount, in fact it may be absent, the absence leading to doubt of the diagnosis of simple ulcer. If, however, the urine be examined, the diminution in the excretion of chlorides will help to clear up the difficulty. The patient in simple ulcer with stenosis and with absence of free hydrochloric acid, is suffering from starvation, and the excretion of chlorine in the gastric juice and in the urine has fallen to a minimum. The patient with chronic gastric ulcer with stenosis may improve if treated by lavage and careful diet. In all cases there is probably an element of pyloro-spasm in addition to the organic stenosis. Hyperchlorhydria and increased acidity from the presence of organic acids will increase this element of spasm. Lavage may give amelioration of symptoms, but will not effect a cure. The patient cannot lead a normal life; if a working man, he is quite unfitted to be a wage earner, the smallest indiscretion in diet, even drinking a cup of cold water, may bring on an attack of pain and vomiting. There is in addition the danger of relapse of the ulcerated process with hæmorrhage. In such a case if a gastro-enterostomy be performed, the ulcerated portion of the stomach obtains the much needed rest, and healing takes place. The gastric motor insufficiency is relieved. The hyperchlorhydria, which in most

cases is a marked feature, is accentuated and perpetuated by the motor stasis. Given relief of the motor insufficiency, the hyperchlorhydria will disappear. Examination of the stomach contents after meals (at different intervals) in a number of cases which have been operated on has shown that secretion and digestion return rapidly to the normal. There is neither delay nor too rapid emptying of the stomach. These results agree with the observations of Carle and Fantino, who found that after operation for stenosis, hyperacidity is reduced and there is improved gastric peristalsis. The gastric dilation, which is always more or less marked, may entirely disappear after operation; if it do not, the physician may hasten the return to the normal by the aid of electricity. It does not appear necessary to administer the electricity intragastrically. Constipation is a prominent and distressing symptom in pyloric stenosis, due principally to the diminished absorption of water from the alimentary canal. Relief from the stenosis is as a rule sufficient to obviate the constipation—medicinal measures being as a rule unnecessary.

The relief which surgery can give in those cases seems insufficiently recognised: given a dependent and efficient opening between the stomach and the small intestine, the ulcer, situated at or about the pylorus, obtains the needed rest, and healing may take place; a chronic invalid is thus transformed into an individual capable of enjoyment and of leading a normal life.

My surgical colleagues have now operated on thirteen cases of chronic gastric ulcer with stenosis which have been under my care, and with the exception of one unfortunate fatality the results have been eminently satisfactory.

For example, a lad aged 18 was admitted to the Deaconess Hospital in an advanced stage of emaciation. His illness had begun a year previous to admission, when he first noticed the tendency to abdominal swelling, and discomfort after food. Flatulence and constipation were marked; he improved for a time under treatment, but relapsed, and was admitted to the Royal Infirmary. Under lavage and diet he improved, and was sent to the convalescent home, where he again relapsed. Re-admitted to the Infirmary, he was treated for three months with some slight benefit. He went home to lead a semi-

invalid life, getting up for a short time in the afternoon, but very miserable on account of his digestive difficulty.

In December 1902 he had a bad attack of vomiting, and was so collapsed that his doctor thought he could not live 24 hours. He rallied, however, and was admitted to the Deaconess Hospital in February. On admission, he was extremely emaciated and weak, the skin very dry, the tongue thickly furred. There was heaviness, distension, pain, and acid eructations after nourishment of any sort. Cumulative vomiting was marked. The abdomen was flaccid and hollow, splashing was easily elicited, no tumour was palpable, but there was tenderness in the epigastric region. On palpation, gastric peristalsis was visible. Percussion of the stomach, after distension with air, showed dilatation, the greater curvature being below the umbilicus. There was marked motor insufficiency. The examination of the stomach contents showed an increase in the total acidity; free hydrochloric acid and organic acids were present. The diagnosis was obviously organic stenosis of the pylorus from chronic gastric ulcer.

My colleague, Mr Alexis Thomson, operated, performing a gastro-enterostomy. The patient made an uninterrupted recovery, and is now in perfect health, his digestion normal, weight 9 st. 12 lb., height 5 ft. 4 in. The stomach is normal in outline.

Another patient, on whom Mr Cotterill operated, was in a very advanced state of emaciation, entirely confined to bed, and vomiting everything which he took. The lesser curvature of the stomach was at the umbilicus, the greater curvature in the pelvis. After operation he made an uninterrupted recovery. It seemed impossible to satisfy his appetite. He can now eat anything without ill effect, and when last seen weighed 13 st., and was still putting on weight. The stomach had returned to its natural position and dimensions, a striking example of the capacity of the organ to recover tone and health under favourable conditions.

A third patient had suffered from dyspepsia for 15 years; for 13 months he had lived entirely on milk. Operated on in November, he was able by Christmas to eat turkey and plum pudding, and drink champagne.

The treatment of *chronic gastric ulcer* where there is *no*

pyloric stenosis is trying alike to the sufferer and to the physician. The patient is condemned to a life of suffering, there is more or less constant gastric pain and digestive trouble, any error in diet producing acute gastralgia. In such cases medical treatment may give relief, complete gastric rest is persisted in as long as the general nutrition of the patient permits. To get a satisfactory result, the patient must be prepared for at least a two months' rest in bed, and for a carefully restricted diet over a much longer period.

The circumstances under which the physician should advise surgical interference seem to depend so far as present experience goes on the locality of the ulcer. Chronic gastric ulcer situated within the pyloric third of the stomach seems eminently suited for treatment by gastro-enterostomy. Cannon has shown that the pyloric third of the stomach is the portion where peristalsis is most active. The fundus takes some part in peristalsis, but the greater part of the movement is in the pyloric third. Given an ulcer anywhere in the pyloric third, healing is prevented by the movement of the ulcerated portion of the stomach, and by the passage of food. Under such circumstances, gastro-enterostomy is a rational procedure. The fresh outlet is made at the dependent portion of the greater curvature, the pyloric portion is short-circuited, the ulcer obtains the needed rest, and healing becomes possible.

Mayo states that gastro-jejunostomy, if the pylorus be unobstructed, is far from satisfactory. Lund, Joslin and Murphy have published the results of operations for benign diseases of the stomach in the Boston City Hospital and Massachusetts General Hospital from 1898 to 1903. In studying their cases, one is struck by the fact that the results obtained by operation in cases where the ulcer was not situated in the pyloric third of the stomach were not satisfactory, a recurrence of symptoms being more or less constant. When the ulcer is not situated in the pyloric third, but possibly on the body or towards the cardiac end of the stomach, it is difficult to see how gastro-enterostomy can rest the ulcerated portion and so result in healing. It has been stated that in chronic gastric ulcer, gastro-enterostomy relieves hyperchlorhydria. It certainly does where there is pyloric stenosis and consequent motor stasis. The abnormal secretion

is perpetuated by the motor stasis, and hence if the motor stasis be removed, hyperchlorhydria disappears. In chronic gastric ulcer where is no motor stasis, one ventures to doubt whether in many cases hyperchlorhydria is accountable for the severe pain. In several such cases where I have washed out the stomach during the height of the pain, while free hydrochloric acid has been present, hyperchlorhydria has not been the rule. Under such circumstances, the pain, which is a marked symptom, seems to be accounted for by the peristaltic movements of the ulcerated organ, and by the dragging upon adhesions to neighbouring parts. In considering the question of operation, the physician must take into account his capacity to localise the ulcer, and whether a single or multiple ulcers exist. In localising the ulcer, help will be got from the character of the pain and the locality of the hyperæsthesia. An ulcer situated towards the pyloric third will give pain most marked in the epigastric region. The hyperæsthesia on palpation will be sharply localised about the middle line. An ulcer situated on the posterior wall will give pain radiating through to the back, and the pain may be relieved by an alteration in position, as when the patient lies face downwards. If the ulcer be on the anterior surface, pain may be relieved by lying on the back. An ulcer situated on the body of the stomach will give pain well to the left of the middle line; indeed, under such circumstances one has noted pain and hyperæsthesia sharply localised in the anterior axillary line. And yet the signs are by no means constant, and it is a matter for regret that even with the help of improved gastric methods the physician cannot with absolute certainty localise the site of the ulcer.

The question of a single or multiple ulcer is one which presents great difficulties. Experience teaches that the ulcer which gives rise to pyloric obstruction or hour-glass contraction is usually large, irregular in outline, with dense inflammatory thickening around, and adherent to neighbouring organs. Such an ulcer is usually single. Chronic round ulcer of a punched-out or fissured appearance is more common in the female; there is but little inflammatory thickening around, and consequently there is not the same tendency to adhesions and cicatricial contractions. This type of ulcer is frequently multiple.

The personal experience of one physician in the operative treatment of chronic gastric ulcer must necessarily be limited. Two cases of chronic gastric ulcer without pyloric stenosis, where the ulcer has been situated in the pyloric third of the stomach, have been under my care, and have been operated on by my surgical colleagues.

The first, a fireman, had been ill for two years, had suffered from pain, vomiting, and had had a severe hæmatemesis. He had been treated in the Infirmary, but since his discharge had been unable to work owing to the continuation of his gastric symptoms. He was admitted to the Deaconess Hospital, pain and vomiting being constant. No improvement took place under rest treatment. The diagnosis of chronic gastric ulcer, situated on the lesser curvature near the pylorus with adhesion to the liver being apparently established, after consultation with Mr Alexis Thomson, it was decided to operate. At operation a mass of inflammatory and cicatricial tissue was found binding the lesser curvature of the stomach to the liver. A gastro-enterostomy was performed, and the adhesions relieved as far as possible. The patient made a good recovery, and was discharged a little over a month after operation, taking a normal diet. Six weeks after his symptoms of pain and vomiting returned as severely as ever, and a second exploratory operation was performed, when fresh adhesions were found between the site of the first operation and the great omentum. These were freed, the patient made an uninterrupted recovery, and was discharged apparently well. After discharge there were some slight gastric symptoms attributable to the too free use of alcohol, but since then the patient has gained in weight, has been on normal diet, and able to work, and now for a year has been entirely free from gastric symptoms.

A second patient, a girl, was under treatment three times in the Deaconess Hospital for severe gastric hæmorrhage. The symptoms and signs pointed to a chronic ulcer on the pyloric third of the stomach. Mr Thomson operated with satisfactory results. The patient has since suffered from some ovarian trouble, but there are no symptoms of a relapse of the gastric ulceration from which she previously suffered.

In two cases of chronic gastric ulcer where the ulcer has

not been situated on the pyloric third of the stomach, the result obtained by gastro-enterostomy has not been satisfactory. One would hesitate to express any opinion on the strength of two cases, did not one's experience coincide with the observation of Mayo, and recorded cases such as those of Lund, Joslin and Murphy. Gastro-enterostomy would then seem not to carry out the principle of rest to the ulcerated surface, and hence it seems open to doubt if it will give satisfactory results.

In conclusion, the circumstances under which, as a physician, one would advise surgical interference in chronic gastric ulcer are :—

1. In chronic gastric ulcer with pyloric stenosis, gastro-enterostomy by relieving the pyloric stenosis and resting the ulcer will effect a cure.

2. In chronic gastric ulcer without pyloric stenosis, if the ulcer be situated on the pyloric third of the stomach, gastro-enterostomy may effect a cure by giving the ulcer rest.

3. It does not tally with present experience that gastro-enterostomy will effect the cure of an ulcer situated outside the pyloric third. The routine performance of gastro-enterostomy, as has been advocated by some surgeons irrespective of the situation of the ulcer, is to be deprecated. Such patients improve under the careful dieting and rest of the stomach which is observed after operation, but relapse of the ulcer is to be expected. In such cases, if the surgeon can excise the ulcer, benefit may result ; a simple gastro-enterostomy will probably only result in disappointment.

OLD SCOTTISH MEDICAMENTS

The Erskine of Alva Books of Remedies

IT is not often when examining a collection of Scottish family papers that one comes across more than one commonplace book of medical recipes, but in the cabinet, rich in MSS., in the possession of Mr A. Erskine-Murray, which it was my privilege to examine lately, I found no less than three of these collections, though none were perfect. I propose to give a short *resumé* of

some of the cures given in them, for their interest is twofold: first, because the collections are all indubitably Scottish; and secondly, as they belonged to succeeding generations of the family of Erskine of Alva, cadets of the Earls of Mar, from whom they have, with the rest of the MSS., descended directly to their present owner.

The first of the books is, unfortunately, now a mere leaflet, a fragment of its former self. The writing is bad, and I take it, dates as far back as about 1630, if not earlier, and the recipes begin to show us that our ancestresses had their hands full if they studied, besides household concerns and embroidery, such books and carefully compounded the medicaments after the prescribed fashion. The ailments mentioned are simple. One recipe is given to "hinder" the marks of small-pox—the scourge of bygone beauties in an age when not to be marked, itself gave a lady a title to be "well-looking"—by anointing the face of the patient with the fat of calves' feet and rose-water, or white wine and butter, or salt-butter and rose-water. The remedy "against pain in the back" is also ordinary. "Take the slymy substance of Comfray root in posset drink 4 or five days togethyr; or take Knott-grass, shear it and mix it w^{h} butter & make a tansie therof & eat it." For a pain in the back, take some mugwort, sage & hyssope, w^{t} may butter, & boyll them till ane oyntment & strain it and anoynt the back w^{t} it often." Toothache was treated with a horrible composition of honey and ginger. To take out a "stobb" or splinter from a finger, recourse was had to "Southewood bruised w^{t} suyns grease." We are told that a plaster of "Goos dung applyed draus out iron or stobs of timber," and that Garlick sodden and bruised applyed w^{h} pitch to a wound draus out all thing in it. This fragment, which we wish was longer, contains an equally popular, if less useful recipe, showing that medicine and the Black Art were by no means yet divorced. It is "ffor mischievous arts and putting divills to flight," and it runs: "S^{t} John's wort hung in a house putts to flight mischievous arts and evill spirits, ffor the q^{ch} caus it is called fuga dæmonum. Who ever carries Eringo roots is freed from Witchcraft, [also ?] a payet [Magpie ?] rosted or sodden & eaten spidely. Mugwort being hung about the door keepeth a house from Witchcraft."

The next book is later in date. It has lost its binding and

is now a much handled volume of nearly a hundred closely written pages. It bears the fascinating title, "The Knowledg of mecking of plesters or stelling of watters wich haue bein oftin used and found to be treue the 22 of June 1656," and the recipes in it grow longer and much more formidable, and they show a strange knowledge of the properties of a multitudinous number of herbs and grasses, as well as a quaint mixture of odd remedies and charms. "A continuall hedach" was treated with "Betony water," white wine boiled along with braised pepper, or juice of rue. Cures for bruises and aches fill a large part of the book, and the dampness of the old houses is shown by the number of remedies for Agues and "Quartaine Ague." The latter was doctored thus: "Take a pottle of good red wine & a pottle of new milke of a cow all of one colur; take 2 or 3 good handfulls of Mouseare (hawkweed) cleane pickt & washt, steepe it in y^e^ milke & wine & temper them together & let them stand soe one night and putt them in a faire still & still them w^h^ a soft fire & take y^e^ water & put it into a faire glasse & putt it in y^e^ sunne 4 or 5 dayes & let y^e^ sick when he is drie in his Ague drinke thereof 3 or 4 times & he shall be rid of his Ague." Another draught was made with burrage, sorrell, violet leaves, and strawberry leaves boiled in water, to which was added white almonds and sugar. This was drunk warm. We are told "If age will suffer it, y^e^ cutting of a veine before y^e^ fitt cometh destroyeth greatly y^e^ Ague. Let it be used often and a little at once." Otherwise all the other remedies are medical. One advocates the anointing of the patient's head, hands and feet with "oyle of scorpion." A plaster made of nettles, cobwebs, and salt placed on the patient's left arm was also strongly recommended. Another plaster of elder leaves, bay salt, rock alum and boar's grease was used to "aswage swelling in y^e^ leggs or elswhere y^t^ cometh of Agues."

"Postoumes" come next in the book, and a short account is given of their description and origin. "Thes be hote which proced of blood & choller. Thes be cold which come of phlegemei and melancholy." Little could apparently be done to cure them, except in the case of "Thos which be opened by y^e^ helpe of y^e^ chyrurgin, [which] be those which are harde, colde, large in bodys ewill disposed & thick skined, in cold membranes & parts in y^e^ emuntories." Syrup of gillyflowers

we find was used as a cordial, as was syrup of violets, whereas syrup of white poppies was said to be an astringent used to procure sleep in pestilential fever. "It helpeth y^e^ cough, hindreth y^e^ humors which distill from y^e^ head into y^e^ throat, tickling, and it is presious youse against y^e^ palsy if it be youse in y^e^ begining."

The number of salves, cures for bruises and wounds of all kinds indicate the turbulent life our ancestors lived. Among them is "A medicome for burning, scalding, or hurt with a hand gunne," which is composed of chopped sheeps suet, goose dung, fresh butter and sage. Burning with gunpowder has four cures. Eggs distilled with the juice of houseleeks is one, another is composed of boar's grease, groundsel, houseleeks and sheeps' dung.

The chief salve for wounds, however, was "a noble entreat called gratia dei, w^ch^ is to be made about S^t^ John's day y^e^ Baptist." It was long. "Take vervyn, pimpernell, and beatony, of each a handfull, stampe them well and boyle them in 3 quartes of white wine, till a quarte be wasted. Then streine through a linnen cloth, and set over y^e^ fire againe, and put thereof to a *li^d^* of perosin (*sic*), well beaten to powder, 4 oz. of virgin wax, small minard mede wax resolved in womans milke y^t^ nourisheth a man childe." Powdered mastick was to be put in, and the whole boiled in the wine, after which turpentine was added, and the salve prepared "in rolls." This concoction was good for as many things as a modern patent medicine. It "favoureth, cleanseth, and healeth more in a weeke y^n^ anothyr doeth in a month." It was a remedy for blotches, thorns, and "is good for venyn bitings and prickings if it be laid to the times," and ripened and broke impostumes, and was good for canker.

There are recipes "To healpe and enlarge a short breath," "comforters of y^e^ hart," and "a medicine for stopping of y^e^ breast and to open y^e^ pipes," by the means of elecampane and radish root, "fair wardens" and clarified honey, and "breath restoratives" for "one being in great weaknesse of nature or consumption"; but the last disease, except in the cures for the weakness and the blood-spitting which it caused, is comparatively little mentioned, considering how prevalent it was.

Stone and "collique" were both treated with a powder

composed of parsley seeds, sorrel, fennel, and smallage, fine ginger and onions.

"Cankers" are provided for also. "To stay y^e^ canker in a man's body, and to save y^e^ man," one was told to "Take y^e^ roote of dragant, and cut it in small pecies, and dray it and make powder thereof," a pennyweight of which, put in white wine, was to be drunk warm by the fasting patient three days together. Root of primroses in clarified honey was also used for placing on the cankered hand or joint. The word "Tisand" [Tisane] used frequently for the remedies for coughs, etc., shows the French influence on Scottish medicine, as does the word "megremes," which was the term here used to express "the vapours" of our ancestresses. "A medicine against Drunkennesse" may be of use even to the present generation. It was "y^e^ lights of a sheepe," of which, if the "party soe given" partook, "he schall finde remedy thereby." Again, "Give unto y^e^ druncken man y^e^ asches of swallows burnt in a close earthen pott, being wholy inciverated, feathers, bones, and all, and use y^e^ powder thereof in drinke, brothes and potages, and it shall help him."

Eye complaints were numerous on account of the draughts and darkness of the old houses. "Y^e^ webb in y^e^ eyes if it be old" was treated thus: "Take red pimpernell and Enfras, stamp them in a mortar, and after frie them with Capons greece in a cleane panne, and streine it through a cloth in a glasse vessell, and let it stand in it 3 dayes, after put (it) in a box of horne or tinne, and take thereof and put it in y^e^ webbe of y^e^ eye." For "y^e^ skinne in y^e^ eye," the prescription was: "Take of y^e^ buggs y^t^ are betweene y^e^ bark of a Tree—some call them Thurlice or woodlice, and stamp to powder, and give y^e^ sick to drinke in a little white wine evening and morning." Cataract seems to have been styled "Pearle in y^e^ Eye," and to cure it a distillation of white wine, seasoned with red rose leaves, campane, fennel, rue, vervain, enfras and endive was distilled into a potion; "y^e^ first water will be like golde, and y^e^ 2^d^ like silver, and y^e^ 3^d^ like balme." Gout has a few cures, one an English one, "whereof y^e^ Lord Rich was healed," as well as "Doctor Mendyes medecine"; and earwigs in the ear—that mythical complaint—were to be destroyed by juice of wormwood, rue, or featherwood. A

most interesting prescription indicating the times is "A medecine to cure a frantique man." It opens with a dissertation. "The frenzey cometh, either of great aboundance of blood or coller, and if it come of blood, y^e^ frantique person doth comonly laugh, if of coller, they fight, brawle, and screame (and) are ruled w^h^out cords or chaines. For remedy, first let y^e^ mater be put back w^h^ y^e^ juyce of plantyne, mortt, vinegar and womans milke, anoynting his temples therewith, for it will easy y^e^ paines and provoke y^e^ patient to sleepe, but if it helpe not, y^n^ take opium, hensbane, plantyne, poppie, and y^e^ leaves of Mindray, ivy leaves and berries, mulberry leaves and ye juyce of hemlock and lettice, of each of them ℥i. Stampe them all in a mortar and let a sponge drinke y^e^ liquor of them up and lay y^e^ same in y^e^ same to drye in, and soe after put y^e^ sponge to y^e^ nose of y^e^ patient and it shall cause him to sleepe, and when you will awaek him dipp another sponge in vinegar and hold it to his nose and it will cause him to awake; but if hast [haste] require, let y^e^ frantique man haue his foreheade and temples annoynted w^h^ castoreum, and w^h^out dout it will cause him to sleepe"; in addition that the "fume of his meate be drawne downwards," the wretched patient was to receive a clyster of opium and oil of violets, and we are told "it is werey good to let him blood in y^e^ veine w^ch^ is in y^e^ midele of his forehead. If y^e^ roote of Neproyall be layed to his head it will draw forth the matter of his madness. It hath been proued," but the book does not say how! Another "medicine against madness" is somewhat empirical. "Some say y^t^ a mose (mouse?) rosted, eaten, dothe heale frantique persons. Also a red stone bound in a swallow caried about y^e^ patient and tied in a linen cloth and under y^e^ left arme doeth y^e^ lik. A reddish stone tyed and bound to y^e^ brain will heale y^e^ falling sickness by and by." Equally hard on creatures, whether reptiles or birds, and equally empirical, was another remedy for "falling sickness" or epilepsy. "The ashes of a want meikill frogg or swallow burnt in an earthen pot and dronke is wery good. There is nothing better y^en^ wine wherein hemlock hath been sodd. Pouder of y^e^ liver of a kite dronke w^h^ y^e^ juyce of cowslipp of days (leads) to greater health without doubt. Piony tied about y^e^ patients neck keepeth him from falling." The only

other recipes that it is necessary to mention in this collection are two which alone in it indicate that at the time it was compiled, a disinfectant was even imagined, and then it was only in the form of a tonic. "One medicine for ane corrupt aire" may be given which runs: "Take hearbe grass, elder leaves and red bramble leaves, and sage, of each a handfull, trim them and stand into a quart of white wine and put a quantity of grated ginger into it, and soe let it stand a whole night before you drinke it, fasting, and it will keepe you from infection."

The next loosely-bound collection of recipes is again much later, and shows more foreign influence. "Pomade divine good for all pains, achs and bruises" is given, also "Dr Boerhaves powders for a fever." Dr Dealtry's pills for a cough, and a French conserve "*pour un estomac affoibli*" are inscribed, as well as "Doct^{r} Rattelif's restorative Pork Jelly in case of loss of appetite or consumptions of any kind by q^{ch} people have been recovered from Death's door." This nostrum was made thus: "Take a leg of Pork just as it is cut up, beat it and break the bone. When pork is not to be had, take a young Pig, put it into 3 gallons of soft river water with ½ an ounce of mace, and the same quantity of nutmegs. Let it boyl over a gentle fire till two-thirds of the water be consum'd, strain it thro' a fine sive, and when it is cold take of the Fatt that rises." This sounds an uncomfortable mixture enough, but it is nothing like as bad as "the restorative Jelly for a consumption,"[1] which runs: "Take one pound of hartshorn shavings, 2 vipers, 3 ounces of eringo root, one quart of snails, shells and all just bruised. Boil them in a gallon of water till it comes to a jelly, then add the juice of six Seville oranges, a pint of Rhenish wine, and half a pound of white sugar candy." This decoction was to be given to the unfortunate patient three times a day, and it is an excellent illustration of the hardihood of our ancestors, even of those who were chronic invalids and suffering from a lingering disease.

A. FRANCIS STEUART.

[1] An almost identical "Jelly for a Consumption" is given in "Cookery and Pastry as taught and practised by Mrs Maciver, Teacher of those arts in Edinburgh," the fourth edition of which was printed in 1784.

CASE OF FATAL COMPLETE IRREDUCIBLE PROLAPSUS UTERI[1]

By G. F. BARBOUR SIMPSON, M.B., F.R.C.S., M.R.C.P.,
Assistant to the Professor of Midwifery and Diseases of Women in the University of Edinburgh, etc., etc.

KÜSTNER, in his article on Displacements of the Uterus in Veit's "Handbuch der Gynäkologie," says: "It is very seldom that the consequences of prolapse lead to fatal diseases. In general, patients take their prolapse, even when they have completely neglected it, unpunished on into old age without being seriously distressed by it or its complications."

Spiegelberg,[2] however, has put on record and figured a case where a patient died of peritonitis associated with irreducible prolapse, and the following notes of a case are of sufficient interest as illustrative of a condition which was not only impossible to relieve by palliative measures, reduction or operative interference, but which in itself ultimately proved fatal to the patient.

Mrs B., laundress, aged 42, was admitted to the Buchanan Ward, Royal Infirmary, on September 30th, 1904, complaining of falling down of the womb. A fortnight previous to admission, her medical attendant, Dr Orr, had been called in, as she had been suffering from diarrhœa for two weeks, along with fever varying from 101.6° to 103° F., and a somewhat slow pulse. Typhoid fever being at first suspected, the Widal test was applied, but was found to be negative.

After the first week, Dr Orr's attention was directed by the patient to a swelling protruding from the vulva, which he diagnosed as prolapse of the womb, which was found impossible to reduce. He applied an ice bag, and three days later, in consultation with Dr J. W. Ballantyne, reduction was again attempted under chloroform, without result. In consequence, she was admitted into hospital as above stated.

General History.—Two years ago, patient began to experience pain in the region of the womb. The pains were of a down-bearing character and came on at intervals, especially

[1] Read before the Edinburgh Obstetrical Society.

[2] "Medianschnitt durch ein Becken mit Scheiden-Gebärmutter-Vorfall."—*Archiv. für Gynaekologie*, Berlin, 1878.

PLATE V.—TO ILLUSTRATE DR G. F. BARBOUR SIMPSON'S ARTICLE.
General view of Prolapse taken during life.

after a hard day's work. No difficulty was experienced at this time in micturition, but patient noticed that if her bowels were constipated her symptoms were worse. Eight months later she first noticed something protruding slightly from the vaginal orifice. She had no idea at the time what was wrong, and did not seek medical advice. The protrusion became more and more evident, in spite of the patient endeavouring to prevent it by wearing a support. After a further interval of eight months the womb was observed by her to be entirely projecting from the vaginal orifice, and, once out, she found that it was impossible to return it. At first, walking was not much interfered with, but sitting was found to be uncomfortable, and she always felt better when moving about. At this time difficulty was experienced in micturition, accompanied with pain before and during the act. The bowels were not affected. From the beginning of the trouble two years ago the periods became affected, being increased both in regard to quantity and duration. As the womb became more and more established in its new position, she began to experience impediment in her movements, and, in addition, pain of a severe dragging nature. Since protrusion, the mass was noticed to be inflamed, with a tendency to enlargement and ulceration. The patient took to bed fourteen days before admission, as she then experienced diarrhœa, with slight vomiting and irregular fever. Dr Orr was sent for, but the patient thought so little of her condition that she did not inform him about the tumour mass until a week later, previous to which, and in regard to the prevailing symptoms, she was being kept under observation as a possible case of typhoid fever.

Previous History of Patient.—Ten years ago she had a child, the labour was severe and forceps were employed. The puerperium was normal, but she did not nurse her child. The menstrual type and habit were normal up till two years ago, and there was no history of any miscarriage. Patient had three brothers, two of whom died of phthisis.

Physical Examination.

The abdomen on inspection presented no prominent irregularity, umbilicus retracted, linea nigra and striæ were well marked.

On deep palpation, which at any point over the abdomen elicited pain more or less severe, a hard mass, rough in outline, about the size of two fists and slightly mobile, was felt stretching across about the level and extending for some distance below the umbilicus. On moving this mass the whole intestines apparently moved along with it. Projecting from the vaginal orifice a large tumour was seen pyramidal in shape, 5½ inches in length and 4 inches in breadth, and constricted at the vulva. The os externum was distinctly visible at the lower end of the tumour, with the lips greatly hypertrophied, everted and extensively eroded. The surface of the tumour was dark red in colour and covered with glairy mucus at its lower extremity, and presented on the surface the appearance as of an epidermic structure so often assumed in cases of long-standing prolapse. Numerous shallow ulcers of varying shape and size were noted at different points of the mass besides the general excoriation of the lips. On either side below the labia majora, beginning at the neck of the tumour, was a long narrow strip of ulceration corresponding to points of contact with the inner surface of the thighs. The everted vaginal wall was thickened and œdematous, and at points presented a macerated appearance with loss of tissue.

The whole mass was extremely sensitive to manipulation, and with a finger in the rectum the fundus of the enlarged uterus could be felt in the back part of the swelling. A catheter passed into the bladder revealed it lying in the front part of the herniated mass entirely below the level of the external pudenda, and there were also to be felt fluctuating spots, the nature of which it was impossible to divine.

Treatment.

With a view to reducing the œdema and favouring as far as possible the reduction of the mass, the patient was placed in the recumbent posture with the foot of the bed elevated and pillow removed. The tumour mass, surrounded with boric lint, was slung from both thighs by means of a clomette bandage. Owing to the frequent passage of water, almost every hour, the dressing required constant renewal, thus rendering it difficult to keep the enveloped part thoroughly clean and dry.

The possibility of the hard mass in the abdomen being due

PLATE VI.—TO ILLUSTRATE DR G. F. BARBOUR SIMPSON'S ARTICLE.

Section of tumour mass made post-mortem, showing right and left halves.

to the lodgment of scybalous masses was removed by the administration of castor oil and enemata, but without any appreciable diminution.

The patient was subject to attacks of vomiting at intervals, which was relieved by means of bismuth and hydrocyanic acid, and the suspicion was entertained that malignant degeneration was developing in the peritoneal cavity. From day to day the patient showed increasing signs of restlessness, and natural sleep was impossible. The temperature continued to swing from normal in the morning to a little over 101° F. in the evening, and the pulse rate accelerated from 92 to 140. Within the last twenty-four hours mental symptoms became prominent, and she died eighteen days after admission.

Pathological Report.

Dr Stuart M'Donald made a post-mortem examination of the case and has kindly given me the following notes:—

External Examination.—Rigor, general emaciation, complete prolapse of uterus, which shows much superficial excoriation.

Thorax.—Lungs: some chronic adhesions found over both; both are also slightly emphysematous, more especially the right. On section both are somewhat dry and tough with exception of bases, which show some hypostatic congestion. No pneumonia or tuberculosis present.

Heart.—Weight nine ounces. Surface shows nothing abnormal. Right auricle and ventricle slightly dilated. Valves and orifices show nothing abnormal beyond some degenerative thickening of anterior cusp of the mitral. The myocardium shows some pigmentary degeneration and a slight degree of diffuse fatty degeneration.

Abdomen.—Dense chronic general peritonitis; intestines and omentum firmly adherent to abdominal wall. Condition extends down into pelvis, and is even more marked there. The matting is so intense that the reduction of the prolapse is a physical impossibility.

The spleen shows chronic perisplenitis, and on section there is some congestion and pigmentary change.

The liver shows chronic perihepatitis and diffuse fatty change. Gall bladder shows nothing abnormal.

The kidneys are pale, but otherwise show nothing specially abnormal to the naked eye. There is no dilatation of the pelvis and there is only very slight dilatation of the ureters.

The dense adhesions of the coils of intestine to one another made dissection *in situ* impossible, and the contents of the lower part of the abdomen and pelvis were removed entire, together with the prolapse and external genitalia. On examination there was found between the umbilicus and pubis a collection of pus evidently communicating with the deeper part of the pelvis. Below the umbilicus was a dense hard mass consisting of adherent coils and thickened, chronically-inflamed mesentery. The adhesions and kinking of the coils had led to considerable obstruction of the lumen at many places. In dissection the bowel was torn at several places, but no ante-mortem rupture could be found, and in the intestine, as far as could be examined, no ulceration was discovered.

The entire mass was hardened in formalin and the following description is taken from the prepared specimen. The mass projecting from the vulva measures about $5\frac{1}{4}$ inches vertically; it is flattened laterally, measuring about $4\frac{1}{2}$ inches antero-posteriorly by $3\frac{1}{2}$ inches laterally. The surface of the mass shows superficial excoriation, with irregular islets of thickened epithelium. A median sagittal section shows the relation of parts with numbered index. (See Plate vii.) In the right half posteriorly the rectum and anus are seen; advancing forwards, the smooth-lined pouch of Douglas is observed; about $1\frac{1}{2}$ inches above the lower limit of the pouch of Douglas is the outer aspect of the fundus. The uterus is not inverted and the uterine cavity is well seen. In front of the uterus the utero-vesical pouch filled with pus is next observed; the lower limit is $2\frac{3}{4}$ inches below the level of the fundus and the space at the lower part is about 1 inch across. From this space a track of suppuration can be traced upwards among the coils of intestine for about 8 inches. At the upper end an abscess cavity with roughened walls is well seen: this is the collection that was opened at the post-mortem. About $\frac{1}{2}$ inch above the fundus there is a pus containing pouch of peritoneum extending downwards behind and to the left of the pouch of Douglas. This opens into the utero-vesical collection. The broad ligaments and tubes are twisted and their relations are difficult to

PLATE VII.—TO ILLUSTRATE DR G. F. BARBOUR SIMPSON'S ARTICLE.

Right half of tumour (half the natural size). By Richard Muir.

1, Fundus Uteri; 2, Lower end of Cervical canal with everted thickened lips; 3, Hypertrophied Vaginal Wall; 4, Utero-vesical Pouch with flaky deposits of lymph; 5, Pouch of Douglas; 6, Wall of Bladder; 7, Urethra seen to the left displaced upward; 8, Anal Canal; 9, Inflammatory mass in mesentery; 10, Collection of Pus among coils of small Intestine in direct communication with 4; the upper limit is seen about 1 inch higher.

make out. Both are found in the left half of the specimen, but apparently the left ovary and tube lie still in the pelvis above and behind the rectum, while the right lies outside the vulva in the prolongation from the utero-vesical pouch mentioned above.

Continuing the description of the right half of the specimen, the bladder, also entirely outside the vulva, with enormously thickened walls and almost obliterated lumen, is next observed. A number of small calculi were also found in the bladder. The urethra is also well seen and was quite patent. A special feature is the everted and greatly thickened vaginal walls. High up among the intestinal coils, the masses of chronically inflamed mesentery and mesenteric glands are well seen. Microscopical examination of those masses shows a simple chronic inflammatory condition without trace of tubercle or malignant disease.

General Remarks.

The case is remarkable from the apparently slight inconvenience caused to the patient, who up to a fortnight before her admission into hospital was going about her ordinary work.

There can be little doubt that the condition was of gradual occurrence. As to the cause of it, we note that the patient's one labour was a severe one, necessitating delivery by forceps, and that involution of the uterus would be retarded somewhat in the absence of lactation. Further, her daily occupation must not be overlooked as a probable factor in the causation.

Various conditions have been described as rendering reduction of a prolapsed mass impossible, such as fibroid tumour in the wall of the uterus, the presence of ovarian tumour, stone or stones in the bladder of considerable size, various degrees of peritonitic adhesions, and it must be under the head of this last category that the above recorded case is included.

How the abscess cavity, discovered quite accidentally post-mortem, came about, must be a matter of pure conjecture.

It is not clear how the septic processes to which the patient ultimately succumbed originated, but it is obvious that the long-standing displacement had become associated with peritonitic adhesions among the dislocated viscera, and from the bowels or eroded surfaces of the tumour septic organisms may readily

have found their way into the tissues and on to the peritoneal cavity, where the pus accumulation had taken place. The spread of the septic process among the intestinal coils had no doubt already taken place before the patient came under observation.

The displacement of the bladder brought about by the prolapse is of considerable interest. In the normal collapsed condition the cavity of the bladder combined with the canal of the urethra is represented by the letter Y, of which the two upper limbs represent the bladder and the lower limb the urethra. Plate vii. shows very well the displacement upwards of the lower limb of the Y, *i.e.* the urethral canal, with corresponding change of position of the anterior and posterior walls of the bladder represented by the other two limbs.

MASSAGE, PASSIVE MOVEMENTS AND MODIFIED RESISTED EXERCISES IN THE TREATMENT OF ADVANCED CARDIAC DILATATION

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A GOOD many years ago the Nauheim treatment for cases of heart disease was introduced to the medical profession by the brothers Schott, and many were the discussions upon the subject to which it gave rise. I had the privilege of watching several cases treated by the artificial baths and associated exercises in the late Sir Thomas Grainger Stewart's wards, and the advantage of Dr G. A. Gibson's criticisms on the resultant changes produced in the patients' hearts. Certain of the patients benefited, others seemed to suffer harm; and I can recall one case—a man who had aortic incompetence together with pericardial adhesions—who was worse after each bath. Our present position seems to be one very different from what we had hoped: namely, that the Nauheim treatment has a very limited sphere of usefulness.

My reasons for bringing up a somewhat hackneyed subject is, that during the past few years I have seen the most astonishing benefit result from the application, not of baths,

but of successive periods of treatment by massage, followed by passive movements, and, later still, resisted exercises; and this in a type of heart case usually deemed to be outside the sphere of the Nauheim method.

I tried the plan in cases of greatly dilated hearts, associated and unassociated with a pre-existing valvular lesion, where compensation was barely maintained, and in which rest and cardiac tonics had failed to yield any further benefit. In one patient, for example, whose heart was greatly dilated, notwithstanding five months of rest in bed, with the exhibition of strophanthus and attention to the general principles of treatment, there was great palpitation, great irregularity of the heart, insomnia, extreme debility, etc. After massage for ten days, followed by passive movements for ten days and ten days of resisted exercises, the patient was able to get up, take very gradually increasing active exercise, and is now possessed of a degree of compensation which enables her to be up all day, walk about to a moderate extent, and even undertake light work. Prior to the treatment the most trivial strain, such as a free action of the bowels, induced the greatest distress; now her pulse is more regular, the heart has greatly diminished in size, the insomnia disappeared, and the patient's general health has greatly improved. In all the cases in which I have tried this plan of treatment, whether administered by experts or not, benefit has resulted, with the exception of those in which the age of the patient or the condition of the myocardium militated against the possibility of the heart being stimulated to a more normal state.

I propose first to refer to the probable effect of massage and exercises on the heart, then to discuss the grounds upon which we have a right to claim definite improvement, next to describe a few of my cases, and lastly to offer suggestions as to the kind of heart cases which are likely to benefit by a method which seems to me to be sometimes capable of achieving more than rest or any drug can perform alone.

Sir William Stokes, so long ago as 1854, recommended a regular course of gymnastic and pedestrian exercises for symptoms of debility of the heart.

Schott[1] states that the exercises produce periodical and

[1] *Lancet*, 1891, May 23rd and 30th.

regulated stimulation of the heart to increased action, and the muscle of that organ obeys the natural law governing relationships between exercise and nutrition or growth. This induces contraction of a dilated heart, and gain in force of pulse, as well as relief from dyspnœa. He thinks that a gymnastic course stimulates the heart to more complete contraction by reflex stimulation of cardiac centres, through the influence of exercise on the motor nerves. He quotes Lauder Brunton's and Tunnicliffe's experiments to prove that muscular exercise first raises and then lowers blood pressure, and thereby accounts for the very considerable fall in pulse rate and tension after the immersion in the baths.

Sir Douglas Powell[1] considers that massage stimulates circulation in the muscles, hastens the venous circulation, and promotes passage of lymph through the lymph channels; thereby body metabolism is maintained and digestion and utilisation of food aided. The heart is stimulated to fuller systole, and possibly the coronary circulation is also improved.

Sir W. H. Broadbent[2] thinks exercises produce a physiological dilatation of the skin capillaries, and also the capillaries in the muscles, and so resistance to onward blood flow is lessened, and the left ventricle is relieved and able to complete systole, while the right heart is not overloaded, as it is by violent exercise. He has a difficulty in explaining the slowing of the heart (specially noted after the baths), because if the capillaries dilate, the heart ought to beat faster, but believes that reflex stimulation of the vagus may account for it.

Lauder Brunton[3] considers exercises exert a very complex series of effects on the heart, alternate contractions and relaxations of vessels probably occurring. He thinks vessels in the splanchnic area may dilate, and so relieve the turgescence of the right side of the heart.

It is very difficult to offer any very cogent arguments in favour of, or against any of these theories, but it seems reasonable to suppose that massage, passive movements and resisted exercises brace up the cardiac muscle, perhaps of one side of the heart alone, more probably of both, whether they do so by

[1] Lumleian Lectures: "Diseases and Disorders of the Heart," 1899.
[2] "Heart Disease," 1897.
[3] "Lectures on Actions of Medicine," 1897.

dilating capillaries or not. In the majority of my cases, the fact that the diminution of cardiac dulness is bilateral, suggests that both right and left sides of the heart are directly or indirectly benefited. Schott believed that the Nauheim baths and exercises were beneficial in nearly all chronic heart cases, and he thinks that only in patients who are the subjects of aneurysm or progressive arterio-sclerosis are they harmful, and not even in all of the latter group. Sir Douglas Powell believes resisted exercises are likely to benefit patients whose hearts are flabby and irritable, where there is fatty infiltration and impaired metabolism, in cases of venous plethora, in chlorosis with dilated heart, in chronic valvular disease with commencing failure of the heart, and lastly in suspected coronary atheroma he thinks they may be tried with caution. Sir William Broadbent considers exercises are not a substitute for other methods of treatment. Dr Gibson[1] refers to massage and passive movements as being of value in cases of grave inadequacy.

I believe the method to be useful as an adjunct to rest and cardiac tonics in many cases of cardiac dilatation, other, of course, than cases of acute endocarditis, and it is in extreme degrees of dilatation in which its cautious use has yielded striking results.

Much discussion has arisen as to whether it is possible to map in the heart with sufficient accuracy as to enable definite recognition of a decrease in size to be ascertained. Groedel, Leyden and others have urged that it is quite impossible to prove by percussion a definite contraction of the heart—while Broadbent, although admitting contraction, believes that the greater expansion of the lungs covers up the heart so as to diminish the absolute cardiac dulness. Professor Leith,[2] in an able paper read before this Society, asserts that even what is termed the apex beat does not yield accurate information, as it may, if the left lung expands, be produced by a different part of the anterior heart wall.

My own opinion is that careful percussion and the position of the apex beat taken together yield definite data, and this

[1] "Diseases of the Heart and Aorta," 1898.

[2] "The Transactions," vol. xv. New Series, 1895-6, p. 67: "Enquiry into the Action of Baths and Exercises, in the Treatment of Chronic Heart Disease."

method of observation is especially satisfactory if sufficient care be paid and a record taken from time to time. The heart varies naturally within very narrow limits, in health at all events, and if along with a smaller area of dulness and an apex beat displaced inwards there is less irregularity, fuller contractions of the ventricles, less dyspnœa, disappearance of œdema, a greater flow of urine in certain cases, improved digestion, and a general sense of greater well-being and ability to undertake exertion without an immediate breakdown of compensation, surely we are justified in claiming that the treatment which brings this about does reduce dilatation and tend to restore the heart to a more normal condition.

In several of my cases the treatment was commenced without any great belief in its success, and therefore I cannot supply some of the data which would make the results of more scientific value. I purpose describing briefly four cases, and referring to other six, and my apology for offering an incomplete paper to the Society is simply that the benefit obtained in some of my cases was so remarkable that I felt it right to give my experience for the benefit of others.

The method itself requires only brief reference. In none of my cases was the entire series of exercises as prescribed by Schott carried out. They were limited to such movements of the arms and legs as could be carried out with the patient in bed, and no particular movements were ordered. A guide as to the length of each separate application was obtained by noting the effect on the patient, and at no time was fatigue permitted. When the period of resisted exercise treatment was over, the patient was allowed to get up and a few minutes' slow walking replaced the exercises.

The period of time occupied each day with the successive methods of treatment varied with each individual case.

CASE I. Female, æt. 47, in June 1903 took a very hot bath, remaining in it for a long time, and the next day walked a much longer distance than usual and at a much faster rate. The following day she experienced a sensation of fluttering and weakness of the heart, felt faint and giddy, was breathless, and complained of a sharp stabbing pain and irritating chest cough. When I saw her I found that she had been vomiting

occasionally, had slept badly, and that her heart was much dilated as compared with measurements made several months previously. At the level of the fourth cartilages—whereas the right border had been ¾ inch to the right of the lateral sternal line, it was 2¼ inches, and the left border, which had been 5 inches to the left of the mid-sternal line, was 7 inches. The apex beat, which had been under the sixth rib, was felt under the seventh and situated in the anterior axillary line; there was diffuse pulsation and slight præcordial bulging. The pulse was intermitting every three or four beats, sometimes more frequently, and the beats were irregular in force and character. There was a systolic murmur in the mitral and tricuspid areas, epigastric pulsation and marked engorgement of the jugulars in the neck. There was œdema of the ankles, and also at both bases.

Her previous history was interesting. The patient on at least one occasion after lifting a heavy weight had a slight attack of the same kind. For the preceding six months the heart was, in my opinion, dilated, but only to a very trifling degree before the episode of the bath, but compensation had never been seriously lost up to this attack. The family history was unimportant, excepting that a sister had died at the age of 49 from "heart disease." The patient has had rheumatic pains in the ankles, feet and hands when a girl, but has been otherwise healthy until her heart began to trouble her. When I first examined the patient there was no definite cardiac murmur, although the first sound in the mitral area was impure.

After long continued treatment with strophanthus, rest in bed, etc., she began to improve, but after lifting a heavy box she had a severe relapse, followed again by improvement. Once more the patient over-strained her cardiac powers and she was completely confined to bed for six months. The slightest effort brought on the phenomena of loss of compensation, and in fact compensation was with difficulty maintained even with absolute rest in bed, and the administration of strophanthus and other cardiac and diffusible stimulants. Last April massage was commenced and kept up for ten days, followed by similar periods, first of passive movements and then of resisted exercises. On the twenty-first day after beginning massage the patient was allowed up for half an hour, and instead of exercises walked

slowly for five to ten minutes. Each day the amount of exercise was increased.

The pulse became more regular, intermitted less frequently, often only every 30 to 40 beats, and the patient ate and slept better. The daily pulse rate, which before beginning massage had been about 80 per minute, gradually diminished in frequency to 72 to 75; and the respirations, which were 25 to 30 before the treatment, diminished to 20 and 21. The apex was found to have returned to its old position just under the sixth rib in the mid-clavicular line, and the right and left borders of the heart were ¾ inch to the right of the right sternal border and 5 inches to the left of the mid-sternal line respectively. The cough had disappeared and there was no epigastric pulsation or distension of the veins in the neck. The urine almost doubled in quantity.

This patient has been under constant observation, and now at a period of eight months since being allowed out of bed there has been no relapse, and compensation is sufficiently established to permit of the patient being up all day, taking moderate exercise and even employing herself with sewing and similar light work. During the treatment I stopped all medicinal remedies, only resuming for a time a small dose of strophanthus (5m thrice daily) as a precautionary measure when the resisted exercises ceased.

CASE II. Female, æt. 73, suffering from dilatation of heart with mitral incompetence. She complained of pain over the heart and bronchitis. The history was as follows:—Two years ago dyspnœa became a marked feature and was associated with a long-standing bronchitis, which had troubled her for years, and especially in winter. Within the past weeks the urine has gradually diminished in quantity. The patient has had very hard work, but there is no history of alcoholism. The present condition before treatment is as follows:—There is a history of several attacks of influenza and rheumatism. Patient sits up in bed very dyspnœic, with slight œdema of feet and ankles, no ascites. The apex beat is in the seventh left interspace, fully 8 inches to the left of the middle line, and almost in the mid-axillary line. There is distinct præcordial bulging, and epigastric pulsations, systolic in time. A short presystolic leads up to a faint systolic murmur. The pulse is

74, irregular in time and force; the arterial walls are somewhat thickened and the tension is high. The right heart extends fully 3 inches to the right of the right lateral sternal line, at the level of the fourth rib. There is a basal œdema of the lungs, especially on the left side, and a few rhonchi are audible. The urine is markedly deficient in quantity, and there is a trace of albumen.

Treated with absolute rest in bed, tincture of strophanthus, spirit of chloroform and aromatic spirit of ammonia, and later with liquor strychninæ, slight improvement resulted; but between the 14th June and the 2nd August, when massage was commenced, the total benefit was very limited, and for several weeks preceding the massage there was no appreciable gain.

On the 2nd August massage alone was begun; on the 9th, passive movements; and on the 16th, resisted exercises, limited, however, to those possible in bed. After a week's treatment by resisted exercises, patient was allowed up for two hours and the exercises were replaced by a very short walk. The heart diminished considerably in size, the measurements being 2¼ inches to the right of the lateral sternal line at the level of the fourth rib, and the apex beat was found to be in the sixth space and 6½ inches to the left of the mid-line. There was still obvious systolic pulsation in the epigastrium, but the œdema of the legs and ankles had almost, and the pulmonary œdema had entirely, disappeared. The urine had considerably increased in amount.

The rate of pulse and respiration during the period of massage are interesting. The immediately previous figures for the pulse were: 74, 72, 80, 84, 82; and for the respirations, 26, 32, 28, 25, 28.

			Pulse.	Respirations.
Massage begun.	Aug.	2	80	24
	,,	3	80	24
	,,	4	80	26
	,,	5	84	22
	,,	6	78	24
	,,	7	78	26
	,,	8	72	24
Passive movements begun.	,,	9	82	26
	,,	10	62	28
	,,	11	64	26
	Aug.	12	60	28
	,,	13	60	32
	,,	14	72	28
	,,	15	64	28
Resisted exercises begun.	,,	16	62	24
	,,	17	60	24
	,,	18	58	24
	,,	19	60	24
	,,	20	58	22
	,,	21	58	23
	,,	22	60	24

After stopping the treatment the pulse kept pretty regularly 65-75, and the respirations 20-24. The pulse greatly improved in respect to regularity. The patient was discharged from hospital, feeling greatly better, on the 23rd of September, and although not able to go about much was able to be up and to walk a little every day.

CASE III. Female, æt. 44, a housekeeper, admitted to Ward 27 on 5th July 1904, complaining of "giddiness in the head and swelling of the abdomen, legs and feet."

Her work is fairly hard, but she has been in a country situation, has good food, and is able to get plenty of fresh air and exercise. There is a history of epilepsy, the fits coming on 22 years ago, and induced, patient states, by a severe shock, the doctor who was attending her going off his head and throwing cold water over her. These fits have continued at intervals ever since.

In March 1904 she was admitted to Ward 27, with evidences of loss of compensation. She was found to have mitral presystolic and systolic murmurs, a dilated right heart, and to be suffering from œdema of lungs and of legs. Treated with rest and strophanthus, she improved and left hospital on June 7th. She only kept well for a few days, and on attempting to resume work she had a severe relapse, the œdema increasing, and she became very breathless. She was readmitted 6th July 1904, with greatly increased dyspnœa, orthopnœa and severe cough. The præcordia bulges slightly, and there is diffuse pulsation. The apex beat is in the sixth space, 6½ inches to the left of the middle line, and the right border of the heart is almost 3 inches to the right of the mid-sternal line at the level of the fourth cartilage. She has an extremely irregular heart and pulse, the latter being irregular both in force and time. There is no marked epigastric pulsation, and little distension of jugular veins in the neck. There was marked basal œdema, but it considerably lessened before massage was commenced. The legs are œdematous. The urine averages 60 oz. a day, and contains a slight trace of albumen.

After admission, and up to 28th July, the patient improved considerably, but the œdema persisted, and the patient did not

sleep well at nights. There was still orthopnœa. Tincture of digitalis in 5m doses was prescribed, with caffeine citrate and an occasional dose of calomel and other purgatives. The irregularity remained the same, and there was no change in the position of the apex beat or cardiac borders.

On the 28th July, massage was commenced.

" " 5th August, passive movements.

" " 12th " resisted exercises, limited to the arms and legs, and performed with the patient in bed.

On the 19th August the patient was up for one hour, and took a short walk up and down the ward, and by the 1st September the patient was up for the whole afternoon.

The improvement was as follows:—The apex beat was found to be in the fifth space, barely 5 inches from the mid-sternal line, and had come in over 1½ inches, while the right border was only 1½ inches in the fourth space to the right of the middle line. There was certainly irregularity, although less marked, but the improvement may be judged by glancing at the pulse rate and respirations, and by the patient's weight.

		Pulse.	Respirations.
July	6	86	32
"	7	72	30
"	8	88	28
"	9	94	28
"	10	80	26
"	11	72	24
"	12	68	24
"	13	80	24
"	14	72	24
"	15	80	24
"	16	76	24
"	17	82	24
"	18	72	22
"	19	80	24
"	20	88	24
"	21	72	24
"	22	...	...
"	23	...	...
"	24	...	...
"	25	...	...
"	26	...	...
"	27	...	...
Massage begun. "	28	60	20

			Pulse.	Respirations.
	July	29	68	20
	"	30	60	20
	"	31	64	18
	Aug.	1	60	20
	"	2	60	20
	"	3	72	20
	"	4	60	20
Passive movements begun.	"	5	74	20
	"	6	74	20
	"	7	88	20
	"	8	60	20
	"	9	56	20
	"	10	60	20
	"	11	64	20
Resisted exercises begun.	"	12	76	20
	"	13	76	24
	"	14	74	22
	"	15	74	22
	"	16	74	20
	"	17	80	28

		Pulse.	Respirations.
Up for 1 hour.	Aug. 18	76	24
	„ 19	74	22
	„ 20	76	24
	„ 21	74	24
	„ 22	72	24
	„ 23	70	24
	„ 24	68	24

	Pulse.	Respirations.
Aug. 25	68	24
„ 26	76	24
„ 27	68	24
„ 28	76	24
„ 29	76	24
„ 30	68	24
„ 31	68	24
Sept. 1	72	22

	Weight. stones.	lbs.
July 28	9	7½
Aug. 1	9	9
„ 18	9	12

	Weight. stones.	lbs.
Aug. 25	9	12
Sept. 1	10	1

While the treatment speedily yielded good results with this patient—sleeping, eating and feeling better—she relapsed soon after going home, and the early rise of pulse and respiration rates after the resisted exercises ceasing, suggested that the eventual success was not up to the early promise, and this was borne out by an increase in the size of the heart, although not to its former dimensions.

CASE IV. Male, æt. 42, had suffered from long-standing bronchitis, and when I saw him had a markedly dilated heart with both mitral and tricuspid incompetence. He was extremely cyanosed and breathless, unable for any exertion and almost entirely confined to bed. There was slight œdema of both bases, with a considerable amount of watery sputum, and the ankles were swollen. There was no very definite history of rheumatism, and the cardiac condition dated from a severe attack of influenza two years previously.

Examination of the circulatory system showed marked præcordial bulging, with a diffuse, somewhat heaving, cardiac impulse. The jugular veins were engorged and there was a visible venous pulsation. The apex beat was found to be situated in the seventh space and almost in the anterior axillary line, while the right and left borders of the heart were respectively 3 inches and 6½ inches from the middle line at the level of the fourth cartilages. There was marked epigastric pulsation, systolic in time. The heart was extremely irregular in both rhythm and force, and was 95 per minute. The urine was markedly diminished, being barely 15 ounces a day, and there was a trace of albumen. Complete rest in bed with the administra-

tion of strophanthus, diuretin and diffusible stimulants greatly alleviated the symptoms, but after six weeks' treatment the improvement ceased and no further progress was made. The right and left borders of the heart were found to have come in about ½ inch and 1 inch respectively, but any attempt at getting the patient out of bed increased the dyspnœa, although the basal œdema had disappeared and the urine had increased to a daily average of 25-30 ounces.

The pulse was 85, but still extremely irregular in rhythm and force. After waiting for a month I cautiously tried massage for ten days, and followed it up by similar periods of passive movements and resisted exercises, and in three weeks the patient began active exercise in the shape of short walks of ten minutes' duration, which were gradually increased. During this period the strophanthus and diuretics were stopped, and only diffusible stimulants administered. The improvement at once recommenced before the period of massage was completed, and the heart became much more regular, the ventricles contracting more slowly and completely, and the pulse rate gradually fell to 75 (about the normal rate for the patient), while the irregularity almost completely disappeared.

The apex beat was found at the conclusion of the treatment to be under the sixth rib, just in the mid-clavicular line, and the right and left borders of the heart at the level of the fourth cartilages were found to be 2 inches and 5 inches respectively from the mid-sternal line.

The urine had increased to 50-60 ounces a day, and the trace of albumen had disappeared.

There was no dyspnœa on moderate exertion, and the jugular and epigastric pulsation had vanished.

This patient is now able to be up all day, and has had no relapse. A year has passed, and during that time the amount of exercise has been gradually increased without any untoward result. It is interesting to note that the bronchitis has not troubled him to the same extent, and that he is in better health now than he has been for many years.

Of my other six cases, three were men and three women. Two—a man aged 45 and a woman aged 41—had both aortic and mitral incompetence, and the other four—two men aged

69 and 32 and two women 45 and 52—had mitral and tricuspid incompetence. All showed marked cardiac dilatation, with loss of compensation and evidences of backward pressure, including œdema of legs and bases of lungs, diminished flow of urine, etc. The same treatment was tried in each case, and with success in four. In one of the unsuccessful cases, the man with aortic and mitral incompetence, it seemed to be hurtful and had to be stopped, and in the other patient with aortic incompetence very little benefit accrued from most carefully regulated treatment. I have also found that in cases of dilatation with mitral stenosis the benefit obtained from this treatment, while satisfactory, was limited, and did not yield such permanent results as in the other cases.

In noting diminished area of cardiac dulness, the diminution naturally depended much on the degree of true dilatation present representing to a great extent at least the amount of compensation lost. Even where hypertrophy was marked, improvement occurred, but the excess dilatation was probably the factor which explained the cardiac contraction. I have not tried radiograms of the heart for obvious reasons, but if successful and also possible that method would be much more exact. Evidently aortic cases do not suit so well for this method of treatment, but my experience is far too limited with regard to them.

Even eight successes or moderate successes out of ten cases so treated seems to me to warrant the systematic trial of this method. It is impossible to make any definite statement as to the permanent value of the treatment even in the eight cases called successful. In over half of them considerable periods have elapsed without any breakdown of compensation, varying from over two years to six months. One case I know has relapsed, although I should hardly term it a complete failure.

In conclusion, I must express my thanks to Dr Bruce, in whose wards two of the cases were treated, for permitting me to use the notes in the case-books; to Dr Lorimer, who helped me with some of the observations on these two cases; and lastly, to Miss Gustavsohn, whose careful massage and application of the passive movements and resisted exercises materially aided me in obtaining successful results with four out of the ten cases.

NOTE ON RICKETS IN DUNDEE [1]

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IN the following note an attempt has been made to estimate in a definite manner the prevalence of rickets amongst the children attending the medical out-patient department of the Infirmary. The results are based upon an examination of all the children, from the earliest age up to and inclusive of those of five years, who have come under observation during the past year, no matter for what ailment.

It may be as well to state that the out-patient department here in Dundee is frequented chiefly by the lowest classes, and at times by those belonging to somewhat higher social strata, who have found themselves unable to bear the expense of medicine and of medical attendance in long-continued illness. There is thus extremely little of what is called hospital abuse, and consequently the following results must be read in the light of these conditions.

In judging the presence of rickets, it seemed best to reject many of the symptoms of early rickets, as the facts are often difficult to elicit in regard to children who are so frequently brought to the out-patient department, not by their mothers, but by neighbours or by older children, who do not know or cannot give any satisfactory information.

In this way such facts as refer to head-sweating, date of dentition, and the like, have been set aside, and attention has been confined to definite objective signs. Besides, it was not so much a study of rickets *per se* that was aimed at, but rather an estimate of its incidence and of the degree of its severity.

The signs specially selected and looked for in each case were beading of the ribs, enlargement of the wrists, changes in the shape of the chest or spine, knock-knee and bow-legs.

The number of children examined was 463. Their age distribution, with the noteworthy prevalence of infantile disorders during the first two years of life, is well brought out in the table following.

[1] Read before the Forfarshire Medical Association, Feb. 2, 1905.

Beading of the Ribs was present in 347 cases, *i.e.* in 74.9%, thus practically in three-fourths of those coming under observation. This, of course, confirms it as one of the most widespread signs of rickets. Its age distribution was very instructive. If we take the children and examine them at varying age periods, we get the general results which are here presented in tabular form ;—

Age Group	No. of Cases	No. with Beading	Percentage
$\frac{1}{12}$-$\frac{3}{12}$	40	5	12.5
$\frac{4}{12}$-$\frac{6}{12}$	36	29	80.5
$\frac{7}{12}$-$\frac{9}{12}$	42	33	78.5
$\frac{10}{12}$-1	49	47	95.9
$1\frac{1}{12}$-$1\frac{3}{12}$	34	30	88.2
$1\frac{4}{12}$-$1\frac{6}{12}$	30	27	90
$1\frac{7}{12}$-$1\frac{9}{12}$	27	26	96.2
$1\frac{10}{12}$-2	40	35	90
2	40	34	85
3	61	41	67.2
4	32	22	68.7
5	32	18	56.2

While these figures indicate the widespread nature of this cardinal sign of rickets, they also show quite clearly the time of its marked onset ($\frac{4}{12}$-$\frac{6}{12}$), of its greatest prevalence ($\frac{4}{12}$-2 inclusive), and also of its decline (from 3 onwards).

The three-monthly groups have been adopted, because, after all, the figures at each monthly group are so small that even a case or two might change the percentage. If, however, in the early stages we look into the numbers per month, we get more closely at the usual date of the onset of the beading. Of the 5 cases reported in group $\frac{1}{12}$-$\frac{3}{12}$, one occurred at the age of $\frac{3}{12}$ in a child suffering from meningitis, and was fairly distinctly marked, while the other 4 were at $\frac{3}{12}$, and of these 1 was slight and the other 3 very slight. At $\frac{4}{12}$, 10 were affected out of 15, giving a percentage of 66.6; at $\frac{5}{12}$, strange to say, all were affected; at $\frac{6}{12}$, 5 out of the 7 examined (71.4 per cent.); at $\frac{7}{12}$, 8 out of

the 12 (66.6 per cent.); and at $\frac{8}{12}$, 10 out of 14 (71.4 per cent.). From $\frac{9}{12}$ onwards to $1\frac{11}{12}$ usually only one escapes per No. in each month, once 2, and in four months none at all. Thereafter the number of cases with beading begins to diminish gradually, until by age 5 it is only somewhat over a half.

Next, in regard to the degree of involvement, there is very great variation. These degrees were roughly classified as "distinct," "slight," and "very slight." As was to be expected, the slighter cases were most marked at each end of the age limits, *i.e.* at their onset and their decline. They were thus fairly common up to the age of 1, when they were replaced by distinct nodes, which persisted until the third year, when once more the slighter forms became evident.

On the strength of this, and finding, from comparison with the earlier series of cases examined, that one develops almost a scent for rachitic signs, I have revised these results and set aside these very mild cases, when the percentages at each end of the age limits now work out thus:—

$\frac{1}{12}$-$\frac{8}{12}$ year, . . .	5 per cent.
$\frac{4}{12}$-$\frac{6}{12}$ „ . . .	60.5 „
$\frac{7}{12}$-$\frac{9}{12}$ „ . . .	59.5 „
$\frac{10}{12}$-1 „ . . .	73.4 „

And at the later ages—

3 years, . . .	54 per cent.
4 „ . . .	48.9 „
5 „ . . .	48.9 „

Even with this reduction there still remains the fact that by age 5 practically one-half of the children still show this distinct beading.

The *wrists* were enlarged in 108 cases, *i.e.* in 23.3 per cent. One case occurred at $\frac{6}{12}$, but it is from $\frac{9}{12}$ onwards that the presence of this sign becomes evident.

From $\frac{9}{12}$-1	it occurred in	11 cases,	16.9 per cent.
„ $1\frac{1}{12}$-$1\frac{6}{12}$	„	30 „	46.8 „
„ $1\frac{7}{12}$-2	„	35 „	52.2 „

During the 2nd year it occurred in 14 cases, 35 per cent.
" 3rd " " 13 " 21.3 "
" 4th " " 4 " 12.5 "
" 5th none were noted.

Its greatest prevalence was thus from $1\frac{1}{12}$ up to 2.

Changes in the shape of the *chest* were only marked in a small proportion of cases. Thus the transverse constriction or Harrison's sulcus was present in 17 cases, there being 2 under one year, 4 in the first year, 6 during the second year, 3 at age 3, and 1 at ages 4 and 5 respectively.

The allied condition of pigeon-breast was present five times, once at $\frac{10}{12}$, twice during age 2, and twice at age 4.

Two had both pigeon-breast and Harrison's sulcus (one at age 4 and one at age 5). One child, aged $2\frac{1}{2}$, had pigeon-breast, Harrison's sulcus, and lateral curvature of the spine. The sulcus was also present once along with kyphosis and once with lateral curvature. These children had other signs of rickets, but, of course, the sulcus and the pigeon-breast may have been aggravated by other complications like adenoids. The distinct lessening of the number, with a transverse constriction at the late ages, undoubtedly points to the gradual improvement with time.

Kyphosis itself was present seven times: twice at age 1, twice at age 3, and thrice at age 4.

Knock-knee alone was noted three times: once at age 2, once at age 3, and once at age 4. Two other cases of knock-knee at ages 2 and 3 respectively were associated with bow-legs. Two cases had bow-legs and bow-arms. In regard to the small numbers with knock-knee and bow-legs, it is more than likely that such cases find their way into the surgical out-patient department or pass directly into the Infirmary.

Amongst all these 463 children, rickets itself was only diagnosed 62 times, these being distributed as follows:— Up to 1, 9 times; 1st year, 27; 2nd year, 14; 3rd year, 9; 4th year, 3; and none at 5. Rickets as a disease is thus commonest here at ages 1 and 2, and it is during this time the marked enlargement of wrists and beading of the ribs are prominent. It is the time when so-called florid rickets is most likely to occur.

Amongst these children there were at least two with delayed speech—probably a part of the general delay in development consequent on rickets. There were also several with delayed walking, with only the presence of rickets as a cause. Three cases with fits were noted: one at $1\frac{4}{12}$, one at $2\frac{1}{2}$, and one at $2\frac{1}{2}$. There was only one case of tetany, a child aged $1\frac{6}{12}$.

One case of rickets and congenital syphilis combined showed marked head-bossing.

Apart from rickets, the prevailing diseases for which relief was sought were those of the digestive and respiratory tracts. Thus no less than 135 were suffering from bronchitis. It occurred at all ages, but especially the earlier ones, and however related to the rachitic condition, certainly tended to aggravate the same.

There were 42 cases of indigestion: 18 during the first three months, 15 from $\frac{4}{12}$-1, and 5 from 1-$1\frac{4}{12}$, and only 4 cases during the third, fourth and fifth years.

Diarrhœa was present 61 times.

These diseases—bronchitis, indigestion and diarrhœa—thus account for 238 cases, or rather more than a half.

Of the remaining diseases, none show the same predominance, but skin diseases (especially eczema capitis, impetigo, and the like), infectious diseases (measles, whooping-cough, etc.), worms, etc., were all represented in varying degree.

Nineteen cases, all but two after the second year, were diagnosed as anæmia, and certainly seemed related to the great underlying out-patient disease of rickets.

The above figures are sufficient to show that rickets is a widespread condition amongst the Dundee medical out-patients, but, at the same time, the relatively small amount of deformities of chest, spine, and long bones leads one to infer that the type of rickets is not a very severe one. In this way, too, one would not look for any great pelvic changes such as would lead in later life to obstetric difficulties. In this connection Professor Kynoch informs me that, while there is a certain proportion of pelves with some degree of deformity, yet he finds from his maternity experience that the very severe cases are generally imported.

The existence in our community of so large an amount of

such a preventable disease as rickets is a very definite indication of the improper feeding and defective environment through which so many children in our midst have to pass. While there are several agencies at work amongst us that will undoubtedly tend in time to alleviate to some extent this state of matters, there is yet behind them all the feeling that no great diminution of this amount of rickets will come until the economic conditions in our city are changed in such a direction as will permit of mothers being free to nurse their children, give them daily fresh air, and superintend their daily lives in the old-fashioned natural way. It is, after all, the care of these children during at least the first two years of their life, when growth and development proceed so rapidly, that will determine in great measure their disease-resisting capacity in later years. While rickets is so often a disease that children, to all appearances, get rid of, there is certainly a distinct lowering of vitality left behind in many cases.

Clinical Records

A CASE OF ACUTE PHLEGMONOUS GASTRITIS

By J. M. COTTERILL, F.R.C.S.

THE comparative rarity of this disease, and the difficulties which frequently attend its diagnosis, seem to call for a short account of a case recently seen in consultation with Dr Darling of this city.

From notes kindly supplied by Dr Darling it appears that the patient, Mr S., aged 40, an insurance agent, was usually a fairly strong and healthy man. A fortnight before his fatal illness he had eaten some foreign salmon. This was followed by pain in the stomach and diarrhœa which lasted a few days, but from this attack he considered that he had completely recovered.

He had been playing golf the whole of Saturday, the day previous to the onset of his last illness. At dinner on Saturday he had eaten veal and ham pie. No other member of the household had suffered from any gastric disturbance. On Sunday morning, shortly after a simple breakfast of tea, toast and eggs, he was suddenly seized with a "sensation of a heavy load at his stomach," and "awful pain." The pain was so severe that he went to bed and applied hot fomentations. In the afternoon he

vomited a considerable quantity of frothy fluid. He became very thirsty and restless during Sunday night, and the pain remained severe.

On Monday morning, being somewhat worse, he sent for Dr Darling. At this time he was vomiting frequently and suffering severe spasmodic pain in the stomach. He was ordered castor oil and laudanum, but this was not retained. His temperature at this time was 99°.5 F., and his pulse 80.

On the following morning (Tuesday) he complained that he was "starving of hunger," and expressed a great longing for food. His temperature was now 102° F., his pulse 120 and his respirations 24. He complained of no tenderness on firm pressure over the epigastrium, nor was the former thirst or severe subjective pain noticeable. He was allowed a small quantity of fluid food, which was retained.

At 6 P.M. his temperature was 101°.6 F., and his pulse 144—severe hiccough had come on. I was asked to see him in consultation by Dr Darling, as it was thought possible that some surgical interference might be called for.

However, by the time I arrived at the house at 9 P.M., he had evidently got rapidly worse; his temperature was now 103°.2, his respirations 48, his radial pulse had become scarcely perceptible, and he was considerably cyanosed. His mind was perfectly clear in the ordinary sense of the word, but so little did he realise his condition that he wanted to know if he would not be able to go back to his work the next day. The abdomen was considerably distended, and he allowed deep pressure to be made over any part of it without complaint of pain, a condition of matters so often met with in cases of very advanced toxæmia.

It was evident that he was moribund, and, as a matter of fact, he died within an hour of my arrival at the house. The duration of the illness was two and a half days. It is stated that the mean duration of life in these cases is six and a half days.

The post-mortem examination was made by Dr T. Shennan, and he has kindly supplied me with the following information.

The whole stomach was thickened throughout to an extent varying from $\frac{1}{4}$ to $\frac{3}{8}$ of an inch. Its mucous surface was deeply congested, and had a small amount of blood-stained mucus covering it. There were numerous petechial hæmorrhages in the congested mucous membrane.

The sub-mucous coat was thickened and yellowish from infiltration with pus, which to the naked eye appeared to be restricted to that coat.

Microscopically there was great infiltration of the submucosa with leucocytes, and considerable œdema; the infiltration extended to the mucous membrane, and also to the

muscular coats. Streptococci were found to be present. The swelling was accurately limited by the pyloric and cardiac openings.

The other internal organs showed the usual changes met with in acute septic cases.

TWO INTERESTING URETHRAL CASES

By J. W. DOWDEN, F.R.C.S.,
Assistant-Surgeon, Royal Infirmary

Urethral Stricture. Complete Retention. External Urethrotomy. Calculus impacted in the Stricture.

A. A., a healthy-looking man aged 65, was admitted in September 1904 to Ward 16 of the Edinburgh Royal Infirmary. In Mr Cotterill's absence the case came under my care. The patient had been treated for urethral stricture eleven years previously, but like so many stricture cases he did not follow the advice then given. Six months before admission he had difficulty in passing water and suffered as well from frequency of micturition both by day and night. The evening before admission he found that he could not pass water at all and consequently applied for treatment next morning. The bladder was distended, there was but little enlargement of the prostate, and an instrument could not be passed further than the membranous portion of the urethra. As a hot bath and morphia suppository failed to give any relief whatsoever, the bladder was tapped suprapubically. The following day a few drops of urine escaped, and as no instrument could be passed it was determined to explore the stricture under an anæsthetic and operate if necessary. After a careful trial the finest whalebone bougie failed to engage in the stricture, so external urethrotomy was performed, but on inspection of the stricture area no sign whatever of the proximal opening could be discovered. The dense fibrous tissue of the stricture was then cut through cautiously in the middle line, and near where the upper wall of the urethra should have been a tiny reddish yellow spot was seen which suggested some fatty degeneration. On touching this spot with the point of the knife it was found to be gritty and hard and was picked out, showing the orifice of the urethra with its characteristic smooth bluish white membrane. A probe was easily passed into the bladder, the stricture divided, and a full sized instrument tied in. The gritty nodule proved to be a tiny uric acid calculus no bigger than the head of an ordinary pin.

Stricture of Urethra. External Urethrotomy under Local Anæsthesia.

T. S., aged 42, was admitted to Ward 16 of the Edinburgh Royal Infirmary in January of this year. In Mr Cotterill's absence the case came under my care.

The history given was that twenty years ago he had had a gonorrhœa and some years later there was difficulty in micturition, which increased slowly and gradually, till six years ago internal urethrotomy was performed which improved his condition for eighteen months, when symptoms of difficulty again appeared, followed by a perineal abscess. The stricture was dilated and the abscess treated, and he remained fairly well, occasionally getting instruments passed. During the six months before admission no instrument had been passed, and symptoms of his stricture gradually returned, and he applied for treatment on account of the dribbling away of urine.

On admission the bladder was distended and a stricture could be made out in the penile portion of the urethra, but no instrument could be passed. A solution of eucaine 1 per cent. and adrenalin 1 in 80,000 was freely injected about the area of the stricture, and the distal urethra was opened painlessly. No trace at all of the urethra in the stricture could be discovered; it was then that the value of the local anæsthetic was evident, because on asking the patient to make water the merest little welling up of urine could be seen and traced to a tiny orifice that would only admit the smallest probe. The stricture was divided and a full-sized instrument tied in and the case subsequently progressed favourably.

Meetings of Societies

Edinburgh Medico-Chirurgical Society

THE fifth meeting of the Session was held on 1st February 1905 —Professor John Chiene, C.B., President, in the chair.

Mr Dowden read a paper on "Recurring Torsion of the Spermatic Cord." Torsion of the spermatic cord might come on acutely, a single attack giving rise to subsequent changes in the testicle. Or there might be recurrent attacks, also tending ultimately to affect the nutrition of the testicle. Discussing the predisposing causes, he said the arrangement of the tunica

vaginalis, in which the visceral layer and testicle, with often a portion of the cord itself, hung loosely, as also a broad arrangement of the structures of the cord, were supposed to be potent etiological factors. The period of puberty seemed to predispose to a certain extent. The exciting causes were uncertain, but exertion or strain, or even position, such as crossing of the legs during sleep, would seem in some instances to have produced it.

The symptoms were generally sudden in onset, consisting of severe local pain, with vomiting, followed by marked swelling of the testicle. There was often just as sudden cessation of symptoms, with complete relief until a second attack. The torsion in most cases occurred from without inwards, causing venous obstruction and engorgement of the testicle, with effusion of fluid into the tunica vaginalis. The subsequent changes were fibrosis, passing on to atrophy of the testicle.

Treatment consisted, firstly, in twisting the testicle from within outwards. Should that not give relief, turning it in the opposite direction. In cases of repeated attacks, fixation of the testicle to the bottom of the scrotum should be advised.

The paper was discussed by Mr Wallace and Mr Miles.

Dr Gibson read a paper on Bradycardia. Having defined the symptom-complex, he proceeded to a consideration of the etiological factors, dividing the condition into two groups, according to their causation :—(*a*) *Exoteric.*—Cases due to idiosyncrasy ; nervous factors, whether organic or functional, as tumour at the base of the brain, sinus thrombosis, or pressure on the upper cervical spine, or melancholia ; toxic agencies, as lead, digitalis, tobacco, bacterial toxins, etc. ; and cases due to cardiac and arterial degeneration. (*b*) *Esoteric.*—In this class are included those cases of bradycardia associated with heart-block—blockage of Gaskell's bridge. Tracings from the jugular and radial pulses of such cases demonstrated the condition of heart-block. Bradycardia might be permanent or paroxysmal, and there might be attendant phenomena referred to the circulatory, respiratory or nervous systems. As regards treatment of the cases included in the second group, rest, massage, passive exercises, iodides, nitrites, digitalis and strophanthus, prove most satisfactory.

The paper, which was illustrated by a lantern demonstration, was discussed by Dr James Mackenzie (Burnley), and Dr Wm. Russell.

Dr R. A. Fleming read a paper on massage, passive movements, and modified resisted exercises in the treatment of cases of advanced cardiac dilatation. The paper, which appears in the *Journal* on page 218, was discussed by Dr Gibson and Dr Russell.

The Glasgow Medico-Chirurgical Society

THE sixth ordinary meeting was held on January 27, the Vice-President (Dr Knox) in the chair. There was a large turnout of members.

1. Dr James H. Nicoll gave: (*a*) A communication on hernia of the ovary in infants. He had had twenty-five cases in which the diagnosis was confirmed in twelve by operation. Specimens from four of these cases were shown, including one that was strangulated, one cystic, and two apparently normal, but so closely enveloped by the posterior layer of the canal of Nuck that they could not readily be replaced. The condition is usually congenital, and is fairly common; Bland Sutton says it is rare, and that for a herniated ovary are often mistaken small encysted hernias of the canal of Nuck. These, Dr Nicoll said, he had only met with once or twice. The paper was followed by a lantern demonstration of patients and of microscopic sections. (*b*) Dr Nicoll next described a radical operation for hernia, which though severe was suitable for cases of persons over middle age, with bronchitis or emphysema. The steps of the operation were illustrated by stereoscopic views thrown upon the screen by the lantern, and the main feature consisted in splitting the sac, passing one half through the other, and closing the canal by a suture which passed through two holes drilled in the pubic ramus. The communication was discussed by Dr Gibb and the President, and Dr Nicoll replied.

2. Dr Freeland Fergus and Dr Inglis Pollock read a paper on "Some Practical Aspects of Bacteriological Investigation of the Conjunctiva." Dr Fergus said that in eye-work the necessity for such work was felt more and more acutely. He had advocated it long ago, and now they were finding the real aid it gave in practical work. This was bound to be so, for they could not deal efficiently with conjunctivitis unless they knew the pathology. There were few conjunctival sacs that did not contain organisms, some pathogenic, many not so, and the former could be roughly grouped thus: (*a*) those that are incapable of mischief while the conjunctival covering was intact, *e.g.* staphylococci, streptococci, pneumococci, bacillus pyocyaneus and others; and (*b*) those that could do harm even with a whole membrane, as Weeks' bacillus, Morro's diplo-bacillus, and the gonococcus. Bacteriological examinations are an aid alike to diagnosis, operative interference, and general treatment. Why do operations often give poor results? It is because the field has not been properly prepared, and an irido-cyclitis or suppuration follows. No operation opening the eyeball, said Dr Fergus, should be done as long as the conjunctival sac contained streptococci, staphylococci, or

gonococci; and generally when the sac was freed from organisms, rapid healing resulted, except perhaps among the gouty. A study of the organisms of the eye was of value in connection with treatment; it pointed the moral of prophylaxis, and in actual treatment indicated often when cure had been attained. He thought that an infection by Weeks' bacillus or the gonococcus must run its course, and that there was no evidence that antiseptic lotions could kill organisms without destroying the conjunctival epithelium. He thought sterilised water acted just as well. Further, one obtained some idea as to when to bandage the eye, and when not. No bandage should be used as long as septic secretion remained. In general a shade or shield should be used instead of a bandage.

Dr Inglis Pollock then gave a short account of the technique employed, and concluded with a lantern demonstration of the chief organisms found in the conjunctiva.

3. Dr Walker Downie reported the case of an infant 8 weeks old, from whose nose he had removed a large nasal mucous polypus. It had been observed soon after birth by the family doctor, and caused difficulty in breathing. It was removed without difficulty by the snare. Dr Downie also described a method of removing foreign bodies from the larynx, which consisted in opening the trachea as if for a tracheotomy, passing a piece of gauze up through the glottis into the pharynx and catching it in the mouth by forceps. The foreign body then was generally found adherent to the gauze. In connection with this he showed a grain of oats removed from the larynx of a child while suffering from pneumonia with a temperature of 104°, also a sharp piece of bone similarly removed from the subglottic region of a child of 8 months.

THE seventh ordinary meeting took place on February 3—the President, Dr Newman, in the chair. There was a large attendance, and the meeting was devoted to a discussion on Typhoid Fever.

1. Dr Alex. B. Ferguson discussed the pathogenesis of the disease, and said that at the outset he would take the specificity of the B. typhosus as granted, and would make no reference to pseudo-typhoid germs. The effects were to be classified as due to: (*a*) endo-cellular toxins, *e.g.* in bacillary clumps and associated with the bowel lesions; and (*b*) extra-cellular toxins affecting the body generally. The central zone was the lymphoid tissue and the glands associated, and the severity of the poisoning was not correlated to the extent of local lesion. From the initial site the bacilli travel by the lymph and blood streams, and by the eighth or ninth day may be seen in the

former. It is due to this diffusion of toxins that so many different tissues are affected, *e.g.* nerve-elements, involuntary muscles, especially in the heart, and solid viscera such as liver, spleen, and kidney. Enteric febricula might be explained by local bacterial infection (not necessarily intestinal), with little diffusion of the extra-cellular toxins. Referring to the blood, Dr Ferguson said that the toxins showed no chemiotactic reaction with the polymorpho-nuclear cells, though they do with the mono-nuclear cells, especially those in the lymphoid tissue. The blood looks darker than usual, clots slowly, and has at first an increased density. The picture later is generally that of a moderate secondary anæmia, while if hæmorrhages occur, the type may be severe, and nucleated red cells may be found. A lymphocytosis may occur, but not richly, as young cells do not readily enter the blood. The lymphocytes are usually 25 to 40 per cent.; the polymorphs are down from 75 to 60; the hyaline cells are increased, the eosinophiles diminished. Very early there may be some leucocytosis, but it rapidly goes, and the white cells may fall to 4000 per c.mm., beginning to increase again by the eighth week. A leucocytosis may give a hint of the incidence of hæmorrhage or peritonitis, but it may be absent, either because the patient's state is so low, or because much septic matter may escape into the peritoneum and the leucocytosis may be intra-peritoneal, not intra-vascular.

2. Dr R. M. Buchanan, city bacteriologist, discussed the agglutination test. He referred shortly to the initial work of Pfeiffer and the convincing researches of Grüber and Durham, and stated that it must not be looked upon as an absolutely certain test. Dilution and time limit were important; at first a dilution of 1 to 10 was employed, but that is now generally regarded as too low. In Glasgow, for municipal work, they used as a routine a dilution of 1 to 50, with a time limit of two hours; the culture employed was generally eighteen hours old. This dilution excluded error from bloods of normal high agglutinating power; beyond this one might miss early cases. In the past eight years he had done 4265 examinations, of which the results were positive in about 45 per cent. As regards the correlation of a positive result with clinical diagnosis of actual typhoid, the statistics of the fever hospitals here showed that in the early years the percentage of coincidence was about 77, now it is about 95, and that may be taken as a high-water mark. It is rare to get a good result before the fifth or seventh day, so that if doubt exist, it should be repeated. It may be got occasionally years after an attack. In conclusion, Dr Buchanan begged that practitioners would send a reasonable supply of blood in the serum tubes when asking the test to be made.

3. Dr T. K. Dalziel spoke on the surgical treatment of perforated ulcer. He said there was really very little to say; if perforation occurred, the right thing to do was to operate at once and close it. The recovery rate was 10 to 40 per cent., the latter figure being perhaps rather high. The diagnosis was not always easy; when made, the abdomen should at once be opened. At Belvidere Fever Hospital the commonest time for perforations had been the twentieth day, at Ruchill the twenty-eighth. Why did one case recover quickly after operation and another die? He believed it was due to the organisms found in the peritoneum; if pure cultures of coli communis or typhoid were got the case did well, if staphylococci or streptococci were present the patient generally died. They had done fifty-seven cases now; Dr Farquhar Macrae, his assistant, had done thirty-four himself with six recoveries (17·6 per cent.). Most of the cases were under 25; seven occurred before admission, and of these one recovered. In every case but one the perforation was in the small bowel.

4. Dr Brownlie (superintendent of Belvidere) spoke on abortive cases of enteric, which he said were most important from the public health point of view. Enteric febricula might be very mild; this was often noted in milk epidemics, where a good many cases never saw a doctor, but could disseminate the disease. He believed about 80 per cent. of cases of typhoid came from an unknown source. In milk epidemics he thought *all* the customers of the suspected dairy should be watched. They noticed the occurrence of typhoid febricula frequently in nurses at hospital, the symptoms being slight fever, diarrhœa, or bilious attacks lasting perhaps a week, and giving the Widal reaction afterwards. It must be remembered as a possible source of infection in these cases, that typhoid bacilli may occur in the urine.

5. Dr Farquhar Macrae discussed the diagnosis of peritonitis in typhoid. He divided it into local and general, the former including a reparative form, where the omentum became adherent to a Peyer's patch, and a perforative variety where the perforation took place amidst adhesions; the general form included the ordinary perforative, a variety in which there was no gross lesion, but where the organisms possibly penetrated the bowel, and a variety where suppuration occurred in a mesenteric gland. There was possibly a fourth variety due to general blood infection. What variety it was could hardly he diagnosed before operation. Peritonitis generally occurred at the end of the fourth week, and was evidenced by sudden pain, collapse, and change in facial expression which was very striking. The pulse and breathing became quickened and the

abdomen was rigid; the liver dulness early was not altered. In a couple of hours light percussion revealed dulness due to fluid: a fallacy here might result from collections of fluid in the colon. If these cases were not operated on, distension resulted, the pulse quickened, vomiting set in, and death ensued. The condition was a grave one, but surgical interference procured a fair number of recoveries.

Glasgow Obstetrical and Gynæcological Society

THE fourth ordinary meeting was held on January 25—the President, Dr J. K. Kelly, in the chair. There was a good attendance, and the following fresh specimens were shown:—

1. Myoma with carcinomatous invasion, removed by Dr Munro Kerr. The capsule had burst, and the tumour was adherent to the bowels and mesentery; there were many secondary deposits. Dr Kerr also showed a myoma removed for excessive bleeding.

2. The President showed three specimens of myoma—one very large, one cystic, and the third complicating pregnancy.

3. Dr Balfour Marshall showed a double pyosalpinx and uterus; a dermoid cyst with long pedicle; and a Zwanke's butterfly pessary which had become embedded in the vagina, having been worn for three years.

4. Dr Nigel Stark showed a microscopic section of a scraping of curetting, believed to be a melanotic sarcoma. The patient had been ill only eight weeks, but there was much weakness and loss of flesh. There had also been a recent pleurisy, still present, and a threatening of intestinal obstruction. The case was under observation.

5. Dr A. W. Russell read a paper on "Some cases of Uterine Myoma, with remarks on the indications for operation." He said he would not spend time discussing the anatomy of these tumours and their situation, but rather confine himself to a consideration of the outstanding symptoms and their relation to operative interference, and in each instance one or more illustrative cases would be given. Thus *bleeding* might be the main indication, either showing itself as excessive menstruation or as metrorrhagia; in several of his cases that had been the clamant symptom. Or it might be *pain* that drove the patient to seek for help, though as a rule that was not excessive; he had had, however, to operate for that reason alone. In other instances the size of the growth may be so great as to cause the patient a good deal of distress and prevent her getting about; it was, nevertheless, astonishing how large a tumour could be

carried without apparent discomfort. Dr Russell, in this connection, showed a large tumour weighing ten pounds removed last July. The patient was out of hospital in twenty-four days. *Pressure symptoms* connected with the veins of the pelvis and lower limbs might call for operation, œdema, thrombosis, and even phlebitis sometimes resulting, while dysuria and polyuria were by no means uncommon, and even intestinal obstruction might supervene. The association of myoma with pregnancy was too large a subject to be dealt with at the present, but note should be made of the occurrence of other pelvic disease with myomatous tumours—a fairly common occurrence. Cessation or retrogression of the growth was really uncommon; various degenerations might occur in it, such as calcareous and myxomatous; carcinoma occurring in a myoma, Dr Russell regards rather as an invasion than a degeneration. He said he had been struck with the occurrence of cardiac dilatation and hypertrophy in cases of myoma, and the improvement that followed when removal was carried out. As regards treatment, there were two great lines of procedure: either one might do something to stop the nutrition of the tumour on the lines suggested by Tait, Goldschalk, or Martin; or one might (and this he preferred) remove the tumour. He generally did a supra-vaginal hysterectomy, and once or twice lately he had dissected out the cervical stump as recommended by Bland Sutton. The paper was discussed by Drs Kerr, Oliphant, Stark, Maclennan, and Armstrong, and by the President, and Dr Russell replied.

6. Dr G. Balfour Marshall read notes of a case of double ovarian cystoma and uterus affected with melanotic sarcoma. The patient was a single woman of 30 years, admitted to the Glasgow Royal Infirmary on 30th June 1904, complaining of abdominal swelling and gastric symptoms of seven months' duration. There was much loss of strength, but no marked wasting. She looked very ill, the temperature was raised, and there was sweating and œdema of the feet. A large ovarian cyst was present, but that evidently did not account for all the symptoms. Enteric was suspected, but the Widal was negative and there was no diazo-reaction. The urine contained a trace of albumin, and though clear and light when passed, it was remarked afterwards that it darkened when it had stood a while. The patient died in a few days, and at the autopsy a double ovarian cyst was found; these cysts, as well as the uterus, and practically all the abdominal and thoracic organs, were the seat of melanotic sarcoma. The pigment was very distinct, the supra-renals especially being as black as charcoal; they were possibly the seat of the primary disease. The case was discussed by Dr Carstairs Douglas.

Glasgow Pathological and Clinical Society

THE fifth ordinary meeting was held on February 13—the President, Professor Muir, in the chair. There was a good attendance.

As a fresh specimen, Dr John Anderson showed a brain with a temporo-sphenoidal abscess which had opened into the lateral ventricle; there was also leptomeningitis. Lumbar puncture during life had yielded a diplococcus, probably the meningococcus.

1. Dr Lindsay Steven showed a little girl of two years with enlargement of liver and spleen. The spleen reached as low as the iliac crest, and in front to within 2½ in. of the umbilicus; the liver was clearly below the costal margin. A brother of the patient died at seven years of age, having had splenic enlargement for three years. Death was preceded by vomiting. Dr Steven thought he could exclude rickets, Hodgkin's disease and syphilis here. The blood showed a moderate anæmia on admission, the count being 3,900,000 red cells, 2800 white, and 35 per cent. of hæmoglobin; there was some poikilocytosis, but no megaloblasts or microblasts could be seen. The white cell count gave about 60 per cent. of polymorphs and 40 per cent. mononuclear cells. The blood was therefore more like that of splenic anæmia in adults than in children. The spleen had been enlarged for eight months. In conclusion, Dr Steven discussed the relations of leukæmia, Hodgkin's disease, and the affections associated with the names of Banti and Hanot. The case was discussed by Drs Cowan, Ferguson, Rutherfurd, Carstairs Douglas and the President, and Dr Steven replied.

2. Dr Crawford Renton described: (*a*) A case of gall-stone, where he had operated in March 1903, and had found a stone in the common duct; this was pushed into the duodenum, and the common duct became obliterated. A year later he reopened the abdomen and connected the gall-bladder with the colon with good results; he used a Murphy's button, which was passed twenty-three days later. (*b*) He also described a case of Kadir's gastrostomy, done in a man of 52 for œsophageal stricture; when the stomach is exposed and drawn out, a catheter is passed in so as to invaginate a portion of the wall, and round this a purse-string suture is passed. The result is an aperture with a natural valved opening. The case has done very well, most of the feeding being by the artificial opening, while a little can be taken by the mouth. (*c*) Dr Renton also showed a boy of eight, who had had complete paralysis of the lower limbs from tubercular caries of the dorsal spine; a laminectomy was done, and three diseased laminæ removed. The boy now walks

fairly well, wearing a poroplastic jacket. A second case was described of a man who had both paraplegia and retention of urine; he can now, after operation, walk about. (*d*) Dr Renton further showed a case of excision of the elbow-joint for a fracture of the lower end of the humerus displaced forward, and described two other similar cases, treated in the same way, all with good results. (*e*) Luy's urine-segregator was exhibited and its mechanism demonstrated. These cases were discussed by Drs Edington, Rutherfurd, and Dalziel, and Dr Renton replied.

3. Dr Kerr Love described two cases of intra-thoracic tumour, and showed the specimens, and Dr Leitch described the post-mortem condition. The first case was that of a man of 32, who came under observation with dyspnœa, cough and muco-purulent and bloody sputum. The latter contained no tubercle bacilli; there had been pleurisy six months before. There was abductor paralysis of the left vocal cord. After a fluctuating course extending over some months, the whole left lung became consolidated, with loss of vocal fremitus; pulsation was noticed under the left clavicle. Death occurred in January 1903. The sectio showed a bulky lung filled with nodular masses cutting like cheese; there were also cavities with ragged walls. There was no aneurism, and the heart was healthy. Microscopically the masses showed structure like an alveolar carcinoma, and were evidently of the nature of an endothelioma. The second case was that of a woman aged 46, who came under Dr Love's care in June 1903 with dyspnœa, and pain and swelling of the right arm. Paralysis of the vocal cords resulted, and then swelling of the left arm occurred. A fatal termination resulted. The autopsy showed a tumour the size of an orange situated behind the trachea, near its bifurcation. It was a spindle-celled sarcoma.

4. Dr W. S. Syme showed a tumour of the thyroid from a woman of 53, who complained of cough, pain in the neck and loss of flesh; there was no hæmoptysis. Nothing was found in the pharynx, and the left vocal cord was a little feeble in action. A hard nodule was found in the left lobe of the thyroid. In three weeks this was much larger, and there was complete left abductor paralysis. Dr Dalziel essayed the removal of the growth, but the patient only survived ten days. Dr Logan Taylor reported on the tumour, which, he said, was 3 in. by 2½ in. by 2 in., with a cavity in its lower half. It consisted of both carcinomatous and sarcomatous tissue, the former being probably primary.

5. Dr Edington showed some examples of ribs with a peculiar deformity, which he had met with in cases of empyema.

The rib became flat or shelf-like, and this was due to increase of bone on the pleural aspect, above the groove for the intercostal artery. Dr Edington also made two other short communications.

Forfarshire Medical Association

AN ordinary meeting of the above Association was held in Royal Infirmary, Arbroath, on Wednesday, 18th January 1905, at 4.15 P.M.—Dr Key, Montrose, President, in the chair.

Dr W. J. Dewar, Arbroath, showed a typical case of pseudo-hypertrophic paralysis in a boy aged 8 years. He was the youngest of the family, none of the others being affected. The symptoms were very rapid in their onset.

Dr Gilruth, Arbroath, read notes on a case of the same disease (the patient being unable to attend), differing from the previous one in that he was the fourth member of the family affected. He then showed three patients.

CASE 1. A young man who had his right knee-joint excised four years ago for tubercular arthritis, and now had a useful limb.

CASE 2. A man with a large sebaceous cyst of the forehead.

CASE 3. A young woman with extensive lupus of face and arms treated with X-rays.

Dr Laing, Arbroath, showed a man who had received compound fractures of both legs in a railway smash. One leg was so badly crushed that primary amputation was necessary, and the other, though terribly damaged, was given a chance, and after many weeks a wonderful recovery took place, and he was left with a deformed yet useful limb.

Dr Duncan, Arbroath, showed a man upon whom he had operated for congenital talipes equino-varus. Photographs before and after operation showed the improved condition.

Dr Yule, Arbroath, read a paper on "Some Symptoms and Sequelæ of Pyloric and Duodenal Ulcers." He referred specially to dilatation of the stomach as a sequel, and gave the indications for surgical intervention in the treatment of that condition. The necessity of proving conclusively, by washing out the stomach twelve hours after a test meal and finding remains of food in the stomach washings, that the dilatation is due to pyloric obstruction, and not to gastric atony, was insisted upon, because the former condition requires surgical treatment, while the latter does not. Notes of two cases of excessive gastric dilatation due to obstruction produced by cicatrisation of ulcers

near the pylorus, upon which medical treatment had no effect, but which had been made absolutely well by the performance of the operation of posterior gastro-jejunostomy (by Mr Greig, Dundee), were read. These were followed by notes of the case of a woman (aged 42 years) who for many years had all the classical signs and symptoms of a gastric ulcer near the pylorus, and whose persistent pain and frequent vomiting were not improved by medical treatment, but were abolished by an exploratory laparotomy (by Mr Greig), at which no evidence of any old or existing ulcer was found. A pyloroplasty was performed, as there were moderate dilatation of the stomach and some degree of hypertrophy of the circular muscular fibres of the pylorus. Three months after the operation, however, the persistent pain, with exacerbations and occasional vomiting, returned. The case was most probably one of neurasthenia, and it was considered that further surgical measures did not hold out much hope of permanent benefit. By request, Mr Greig described in detail the operations he performed on the above cases, and mentioned that he was greatly assisted in the after-treatment by the patients being able to wash out their stomachs by themselves, this being always a great advantage.

Mr Greig then read notes on a series of cases of suprapubic prostatectomy for senile enlargement. He pointed out that it was a mistake to consider the prostate as a trilobed organ; it only became such as the result of pathological changes, as in the hypertrophy of old age. He described the method of operation and indications for surgical intervention in over-distension of the bladder, and showed specimens from ten operations.

AN ordinary meeting of the Society was held in the School of Medicine, Dundee, on Thursday, 2nd February, at 8.30 P.M.—Dr Rorie in the chair.

Dr J. Mackie Whyte showed a man suffering from tabes dorsalis in the early stage. Periodic attacks of vomiting caused him to seek advice, when it was discovered that there were really "gastric crises." He had always been a healthy man; no syphilitic history. He was a tailor to trade. The special points of note were: 1st, absence of ataxia (probably due to his occupation; 2nd, presence of spinal myosis; 3rd, loss of knee-jerks; 4th, occasional lightning pains.

Dr Neave showed another case of tabes in a more advanced stage of the disease. He was a man 40 years of age, had been a soldier, now a pipe-maker. No history of syphilis. His first symptoms were loss of sight and pain and frequency in micturition and occasional diarrhœa (evidently "vesical and rectal

crises"). His present symptoms were: An ataxic gait, Romberg's sign, ptosis in both eyes, divergent strabismus in left eye, complete blindness in left, and optic atrophy on both sides. Knee-jerks still present to a slight extent. Slight incoordination of movements in arms. It was noted that as the optic atrophy increased, the other symptoms diminished.

Dr Foggie showed a boy aged 16 years suffering from some form of spastic paralysis. He was the second youngest of a family of fourteen, all healthy. His birth was normal, no history of head or spine injury. Two years ago began to complain of weakness and difficulty in walking, which had slowly got worse. In walking he kept his legs stiff and straight, and walked on the forepart of his feet with a distinct spastic gait. There was no sensory change in the limbs. There was a marked increase in patellar and great toe reflexes, with ankle clonus; also slight reflexes to be obtained in arms. The condition was probably a primary lateral sclerosis of the pyramidal tract.

Dr Mackie Whyte exhibited the specimen of a placenta from a woman with phthisis of five years duration, which showed numerous tubercles on the amniotic surface.

Dr Foggie read notes of a report regarding the incidence of rickets amongst the children who had attended the medical outpatient department of the infirmary during the past year, when he was in attendance two days during each week. Amongst 463 children examined, beading of the ribs was present in 75 per cent., enlargement of the wrists in 23.3 per cent. The percentage of changes in the shape of the chest and of the long bones was but small. Though rickets was thus widely spread, the type of the disease did not seem a very severe one. This being proved by the fact that "flat pelvis" is not met with to any great extent in obstetrical practice. See p. 231.

Dr Rogers read notes on three cases of Infective Arthritis after influenza. He remarked that the literature on the subject was very meagre, but the subject was worthy of further investigation.

The cases were similar in that all were influenza of the gastro-intestinal type, and several other members in the three households were affected.

The first and second cases were boys who developed acute inflammation in one wrist-joint six days after onset of illness, which quickly passed into suppuration. The treatment was incision, washing out joint with 1-40 carbolic, and dressing with double cyanide gauze. Recovery was rapid, but considerable stiffness remained in the joint for several weeks.

The third case was that of a man 50 years of age, who, on the fourth day of his illness, developed swelling and tenderness

of the right wrist, which afterwards became very red and discoloured, with considerable swelling of the periarticular tissues, and showed every sign of suppuration. Incision did not reveal any pus, but a lot of blackish blood-stained fluid escaped, with pieces of necrosed tissue. This was examined bacteriologically, but the result was negative. The patient made a good recovery, but very considerable stiffness remained in the joint. Dr Rogers considered that there were two distinct forms of infective arthritis. The first variety is seen in typhoid and scarlet fevers where a swelling of the large joints simulating acute rheumatism may take place. This condition passes off in a few days and does not go on to suppuration.

In the second variety there is implication of one joint only, which may be of four types:—

(*a*) Slight transient swelling and effusion.

(*b*) Considerable effusion, at first turbid, then may be purulent.

(*c*) Involvement of the periarticular tissues, with brawny swelling and reddening of the skin, suggesting suppuration

(*d*) Early suppuration—a destructive arthritis.

The first variety may be due to the action of the specific micro-organism. The second variety is probably due to the action of ordinary bacteria of suppuration.

The prognosis depends on the type of the disease. The first three types are favourable with regard to recovery, though there may be considerable stiffness of the joint following. In the fourth type the prognosis is very unfavourable; a great many end fatally within a short time.

Births and Deaths registered in Eight of the Principal Towns of Scotland during January 1905

DURING the month of January 1905, there were registered in the towns of Glasgow, Edinburgh, Dundee, Aberdeen, Paisley, Leith, Greenock and Perth, the births of 4143 living children, of whom 2139 were male and 2004 female. These births are equivalent to an annual birth-rate of 27.9 per thousand of the estimated population of these towns. The equivalent annual birth-rate was during the month highest in Glasgow, 30.3; and lowest in Perth, 21.3. In Leith, it was 28.8; in Dundee, 28.0; in Paisley, 27.7; in Greenock, 26.8; in Aberdeen, 26.4; and in Edinburgh, 23.6. The births registered in these towns during the month number 189 more than in the previous month, and 127 more than in January 1904.

Of the total births, 3835 were legitimate, and 308, or 7.4 per

cent., illegitimate. This illegitimate rate was highest for the month in Dundee, 9.5; and lowest in Leith, 3.0. In Aberdeen it was 9.3; in Edinburgh, 7.9; in Glasgow, 7.4; in Greenock, 6.9; in Perth, 4.8; and in Paisley, 4.0.

Deaths registered during the month numbered 3090, the equivalent annual death-rate being 20.8 per thousand of the estimated population. The number of deaths registered is 38 more than that registered during the previous month, and 233 more than registered during January 1904. The death-rate for the month is the same as for the previous month and is 1.3 more than that for January 1904. The death-rate for the month was highest in Aberdeen, 23.6; and lowest in Leith, 17.6. In Glasgow it was 22.0; in Greenock, 19.8; in Edinburgh, 19.5; in Dundee, 18.9; in Perth, 18.6; and in Paisley, 17.8. The death-rate for the month is higher than what it was for the previous month in each of these towns, except in Glasgow, Paisley and Perth.

Of the 3090 deaths registered during the month, 1074, or 34.8 per cent., were of children of under five years old; and 832, or 26.9 per cent., of persons of over sixty. Deaths of children of under five numbered 58 fewer than in the previous month, but 50 more than in January 1904. Deaths of persons of over sixty numbered 55 more than in the previous month, and 112 more than in January 1904.

Deaths of children of under one year old numbered 639; this is 42 fewer than in the previous month, and 19 fewer than in January 1904. The infantile mortality for the month in these eight towns combined amounts to 152 per thousand births. The infantile mortality-rate for the month was highest in Aberdeen, 231 per thousand births, and lowest in Perth, 87 per thousand. In Edinburgh it was 161; in Dundee, 154; in Glasgow, 142; in Leith, 129; in Paisley, 126; and in Greenock, 118. In Edinburgh, Dundee and Aberdeen this rate was higher than what it was for the previous month, while in Glasgow, Paisley, Leith, Greenock and Perth it was the same or less than in the previous month.

The principal epidemic diseases during the month were the cause of 305 deaths; this is 6 fewer than in the previous month, 93 more than in January 1904, and equivalent to an annual death-rate from these causes of 2.1 per thousand. The death-rate from these causes was for the month highest in Aberdeen, 3.4; and lowest in Dundee, 0.7. In Perth, it was 3.1; in Greenock, 2.5; in Glasgow, 2.4; in Leith, 1.4; in Edinburgh, 1.3; and in Paisley, 0.8. The high rate in Aberdeen was largely due to an epidemic of measles, those in Perth, Greenock and Glasgow to the prevalence of hooping-cough.

There was one death from small-pox during the month: it occurred in Glasgow. Deaths from measles numbered 52; this is 19 fewer than in the previous month; of these 52 cases, 24 were in Aberdeen. Deaths from scarlet fever numbered 11, which is 4 more than during the previous month; deaths from diphtheria numbered 23, which is 3 more than in the previous month; those from hooping-cough numbered 176, which is 21 more than in the previous month; of the 176 cases, 125 were registered in Glasgow. Deaths from fevers numbered 23; of them 17 being due to enteric, and 6 to typhus; of the latter, 1 was in Glasgow and 5 in Aberdeen. Deaths from diarrhœas numbered 19; this is 20 fewer than in the previous month and 13 fewer than in January 1904.

Deaths from influenza numbered 37; this is 10 more than in the previous month, and 16 more than in January 1904.

Deaths from puerperal septic conditions numbered 4; from malignant disease, 126, of which 64 were ascribed to carcinoma, 7 to sarcoma, and 55 to cancers not otherwise described. Deaths from heart disease numbered 277; from apoplexies, 137; from premature birth debility, 95; and from alcoholism, 19.

Deaths from pneumonia numbered 416, and constituted 13.5 per cent. of the total deaths; while those from bronchitis numbered 326, and constituted 10.6 per cent. of the total deaths. Deaths from pneumonia were 1 more than in the previous month, and 84 more than in January 1904; deaths from bronchitis were 43 fewer than in the previous month and 22 fewer than in January 1904.

Deaths from phthisis numbered 225, and constituted 7.3 per cent. of the total deaths; they are 4 fewer than in the previous month, but 19 more than in January 1904.

The Meteorological Returns for Eight of the Principal Towns in Scotland for the Month of January 1905

Mean barometric pressure, 30.053 inches; greater than the average for the same month of 1856-1905 by 0.228 inch.
Mean temperature, 39°.8; greater by 1°.9.
Mean daily range of temperature, 9°.5; greater by 0°.5.
Mean humidity, 84 per cent.; less by 3 per cent.
Rain, number of days, 16; being the average.
Rain, depth in inches, 1.40; less by 1.92 inch.
Wind, force (on scale of 0-12), 3.3; greater by 0.5.
Wind, direction of: a 6 day's excess of winds from W.

HENCE the month of January 1905 was characterised by a very high mean barometric pressure; a high mean temperature, with

a slightly high mean daily range; an extremely low mean rainfall, with the average number of rainy days; a large excess of strong winds from W.

The mean barometric pressure was 30.053 inches, or 0.228 inch above the normal. The monthly range was large, the sea-level extremes at Leith being 28.951 inches at 9 A.M. on 17th and 30.750 inches at 9 P.M. on 28th. From 18th to 31st the barometer was unusually high except during a rapid fall on 30th, when the weather was affected by a deep depression, as also on 3rd and 4th, on 8th, on 11th, and from 14th to 17th.

The mean temperature was 39°.8, or 1°.9 above the normal, the days being 2°.1 and the nights 1°.6 above their respective averages. At all the chief towns temperature was decidedly above the average, the largest excess being 2°.4 at Dundee. Frosts occurred about 9th and 10th, 16th to 18th, 21st, 23rd and 26th, but were never severe or prolonged. The first week of the month was very mild, whilst temperatures towards the end of the month were in great contrast to those experienced in England. Thus during the 3rd week the mean temperature of Aberdeen was 5°.0 above that of London, and during the 4th week the nights at Braemar 4°.0 warmer than those at Bath. The absolute maximum for the chief towns was 55°.0 at Aberdeen on 30th, and the minimum 22°.7 at Perth on 17th.

The mean rainfall was 1.40 inches, or 56 per cent. below the normal, the month being on the whole the driest January since 1881. At places, however, the January rainfalls for 1896 and 1897 were smaller. Dundee and Perth had less than one-fifth, and Aberdeen only one-fourth, of the average, whilst Edinburgh, Leith and Paisley had shortages of 56 per cent. At Dundee the largest daily amount was as little as 0.09 inch, and on the East Coast hardly any rain was registered after the 17th. The largest daily amount at Greenock was 0.64 inch on 17th, the number of rainy days there 23, and the deficiency 28 per cent.

The prevailing winds were westerly and of more than average force. A N.W. gale with very high tides occurred on 6th and 7th, whilst the weather was very stormy from 14th to 17th, and on the night of the 30th.

Snow fell in most districts on 9th and 16th.

Thunder at Paisley on 9th, and at Edinburgh and Leith early on 12th.

Letters to the Editor

CLINICAL PATHOLOGY

AFTER a student has graduated he has, speaking broadly, to take one of three lines; he is either to be a clinical physician or a clinical surgeon, or he has to devote his life to teaching anatomy or pathology. Pathology as a science is now divorced from the clinical work of a physician or surgeon.

But pathology has another aspect: it has a clinical side. Dr Stuart M'Donald, in the *Scottish Medical and Surgical Journal* for February 1904, has written a thoughtful paper "On the Divorce of Pathology from Medicine." He uses the term Medicine in the wide sense including clinical work in medicine and surgery.

In that paper he says: "It will not be seriously questioned that a sound knowledge of pathology is the only sure foundation on which the education of the practical physician and surgeon can be raised."

I look at this matter from the point of view of the surgeon, and I would say that the only "sure foundation" on which the education of the practical surgeon can be raised is a sound knowledge of anatomy and pathology. If I had the training of a practical surgeon, I would advise him, after acting as house-surgeon and house-physician (one year of his life), to spend two years as a demonstrator of anatomy and three years as a demonstrator of clinical pathology. He would visit other schools, and would then be ready to efficiently undertake the duties of an assistant-surgeon. If he is 22 when he graduates, he will be ready for the post of assistant-surgeon when he is 30 years of age (most men are now older). When he is 45 years of age he is in his prime, and should be a surgeon with wards. He holds his wards for 15 years, and at the age of 60 he becomes a consulting surgeon.

After a graduate has had his preliminary training as house-physician and house-surgeon, after he has acted as demonstrator of anatomy for two years, he is 25 or 26 years of age. He is now ready to join the department indicated by Dr Stuart M'Donald. He would, if he had his way, institute a "clinical pathology department," which would be under the superintendence of the senior pathologist, but he says, "the actual work should be in the hands of properly-trained senior graduates who aspire to a place on the regular medical or surgical staff." I would *make it an essential that before a man could apply for a post*

as assistant-surgeon or assistant-physician in the Royal Infirmary he must supply evidence that he has had, say for three, or better still, five, years such a training in clinical pathology. Would we not then have better men for these posts if they had had a more thorough training in clinical pathology, and would they not be better fitted to act as assistant-physicians and assistant-surgeons than they are at present. As Dr Stuart M'Donald points out, such a department would be divided into two divisions, clinical medical pathology and clinical surgical pathology: those men who desire to join the medical staff devoting their attention to the medical aspects of pathology, those who desire to join the surgical staff devoting their attention to the surgical aspects of pathology. I would not make the division too rigid, because *medicine and surgery have much in common.* I have no desire that a young man should specialise, even in this wide sense, too early in his career.

I have expressed my opinion, looking at the subject from the side of clinical surgery; I sincerely trust that the clinical physicians will also express their opinion. There will then be some hope that we will see a system of training assistant-physicians and assistant-surgeons which will make them better able to do their clinical work, better able to teach clinical medicine and surgery, and also, and above everything else, better men and better able to do the very best for the patients under their care.

I have written this short paper because I wish to give my most cordial adhesion and support to the wise suggestions of Dr Stuart M'Donald, and I may also conclude this paper with his words: and "I may say that as a graduate of the University, enthusiastic in her behalf and confident in the capacity of the Medical School under proper management to remain the first school in the kingdom, I feel sure that a discussion by those best qualified to express an opinion would be of the greatest benefit to the school and the profession as a whole."

There is a generation as regards age between us. I graduated in 1865, Dr M'Donald in 1896, but we are of one mind with one common object. I trust that I am still young. He has stimulated me, and I thank him for it. It will be a bad day for our school when the seniors are unable to learn from their juniors. The Gamaliels are not always the seniors in a school.

I also agree with Dr Stuart M'Donald in thinking that in the pathological department we will get from these men original work in pathology, which will redound to the credit of the School of Medicine of Edinburgh. At present the vast amount of pathological material in the Edinburgh Hospital is not utilised as it should be.

JOHN CHIENE.

SIR,—Dr Stuart M'Donald in last month's *Journal* has again drawn attention to a question which has been exercising the minds of all in the pathological department for some time past, viz., the development of clinical pathology in the Royal Infirmary.

I may say at once that I am wholly in agreement with him on all points, so that I need not press his arguments.

Still, before proposing such changes to the Managers, who have always considered sympathetically any suggestions I have made for increasing the efficiency of the department, extra accommodation had to be found, and this has hitherto been my great difficulty. The laboratory, as formerly arranged, could not admit many additional workers. We had only one window bench with a north light, and that was used by the assistant pathologists and also by the laboratory assistants for the ordinary work of staining sections, etc. Of the other five places available on the upper flat of the laboratory, four were already occupied. Two tables in the lower laboratory were occasionally made use of, but the light here was not very satisfactory.

I had already made some changes when the fire occurred last July and changed the whole aspect of affairs. While entailing great inconvenience on us all and loss on some of us, it will, I think, prove in the end a "blessing in disguise," for it gave me the opportunity to propose considerable alterations both in the internal structure and arrangement of the laboratory.—The alterations in the post-mortem theatre have no immediate relationship to the present question.—These have all been sanctioned by the managers, and during the past months have been in process of realisation.

. The result will be that not only will "the ordinary accommodation be available," as Dr M'Donald says, but by re-arrangement of the various forms of work, and concentration of these in different rooms, by furnishing additional window benches with good light and all conveniences for work, I shall have abundant room for five *additional* workers, and could accommodate double that number if necessity should arise.

As for the staff, the pathologist will have his own table and private work-room, and the assistant pathologists will each have his own window bench with water, gas and electric light.

More minute details of the alterations, which are many, need not be given here, but the Department will in future be more worthy of the Royal Infirmary, quite apart from the fact that it will be more efficient for its work, which, whether of clinical or post-mortem nature, has of late greatly increased. The upper flat of the laboratory will be wholly devoted to micro-

scopical and bacteriological work. All preparation of specimens, whether gross or microscopic, and all preparation of nutrient media will be relegated to the lower flat, and to the old Pathologists' Room at the far end of the building. As all parts will be connected by telephone, inter-communication will be easy.

I have not referred to improvements in heating, ventilation and lavatory accommodation, which are being carried out, but I have said sufficient to show that if the Managers view with favour these proposals to still further extend the clinical part of our work, which is so important for the diagnosis of disease during life, as distinguished from the ordinary investigations post mortem, which are usually associated with a Pathological Department, the necessary accommodation is already, or will be shortly, available. THEODORE SHENNAN.

Editorial Notes and News[1]

Surgery in Edinburgh University.

WE learn with much satisfaction that important proposals are under consideration for the improvement of the arrangements for the teaching of Surgery in the University. The Surgical staff of the Royal Infirmary need fear no comparison in the matter of ability to teach. But the present position of Surgery in the curriculum makes it difficult. The student comes to the surgeon before he is sufficiently grounded in preliminary work, and his mind is occupied with other things. As Mr Cotterill pointed out in a recent *Journal*, some modification is urgently required, and we rejoice to hear that it is in view.

The Protection of Illegitimate Children in Leipzig.

WE have already referred to Miss Sutter's little book, dealing with the Elberfeld system of poor relief. But there is one chapter in that book to which we should like to call special attention, as it seems to have escaped notice in the voluminous correspondence upon the poor and the unemployed which "England's Next Campaign" has called forth in the daily press. This chapter is entitled "How Leipzig 'keeps' its Baby Brother," and indicates that in the care and protection of a most unfortunate class of children, this German city has reached a level of humanity probably unattained elsewhere. Certainly the measures in force in Leipzig are far and away superior to the requirements of our own Infant Life Protection Act.

[1] This department of the Journal is under the control of the Senior Editor.

"The City of Leipzig, in the person of Town Councillor Hentschel, is guardian to every illegitimate child born in that city." This sentence sums up the whole situation. The city requires every child who is placed under the care of a stranger to be brought to the Council Room and registered. The child is then visited at home by a doctor, and is placed in charge of one of a staff of eight ladies, among whom the various districts of the city are divided. Each of these ladies has some 130 infants under her charge. She is required to visit the children at least once a month, and may do so as often as she thinks necessary. At her visit she must satisfy herself that the child is clean and well cared for, and that the regulation amount of milk is being purchased for it, and kept in a separate vessel well covered up. Until they have completed their sixth year, these children are under constant medical supervision. No payment is given by the city to the foster-mothers, but there is an annual exhibition day, when prizes are given to those whose children are in the best condition. This exhibition day is taken advantage of by married couples who desire to adopt a child, and these people are required to report annually the condition of the child.

Another point is worthy of note, and that is that the city makes every endeavour to discover the father of the children, and to make him contribute to the child's support. It is stated that 90 out of 100 fathers are known and registered, and that they often have to pay a sufficiency for the child's maintenance till its fourteenth year.

Who looks after the illegitimate children in this country? How far these children are from having a fair chance is well known. The death-rate among them is much higher than the general infantile mortality, and those who do survive are handicapped in many ways, and swell the numbers of the infirm, the poor, and the criminal classes. Dr Farr has summarised from a large number of returns the effect of illegitimacy on infantile mortality. Thus, in 12 districts with a low infantile mortality, the number of deaths of legitimate children per 1000 legitimate births was 97; the number of deaths of illegitimate children per 1000 illegitimate births was 388; in 12 districts with a high infantile mortality, the respective figures were 192 and 366. These and similar facts have led to legislation in this country, and persons receiving for reward more than one infant under the age of 5 are required to report to the Local Authority, and it is the duty of the Local Authority to appoint inspectors and to fix the number of infants who may be kept in any dwelling. But the requirements of our law fall far short of what is really necessary if a peculiarly unfortunate class of

infants are to receive the protection they so urgently need. Only some such system of public supervision of each individual child as is in force in Leipzig, can meet the necessities of the case. We shall very soon be in the midst of public discussions of the Elberfeld system and its applicability to our own cities, and it is to be hoped that the example of Leipzig will not be overlooked in the consideration of the larger problems of city life. The adaptation of Elberfeld methods to our own needs will tax the wits of the wisest, and even the wisest may fail. But the better care of unprotected infancy appears to be a perfectly definite problem, and capable of prompt and satisfactory solution.

Royal College of Physicians of Edinburgh

A QUARTERLY MEETING of the Royal College of Physicians of Edinburgh was held on Tuesday, February 7th, 1905—Dr Playfair, President, in the chair. Dr Alexander Goodall was introduced and took his seat as a Fellow. Dr David Duncan Main, Shanghai, China, was admitted by ballot to the Fellowship. Dr Patrick Hehir, Manipur, Assam, was admitted by ballot to the membership of the College after examination. The Registrar reported that since the last quarterly meeting, forty-four persons had obtained the licence of the College by examination.

Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Faculty of Physicians and Surgeons of Glasgow

THE quarterly examinations of the above Board, held in Edinburgh, were concluded on 28th inst., with the following results:—

First Examination, 4 Years' Course.—The following 2 candidates passed the examination: Arthur Donald Roberts, Madras, and George Harrison.

First Examination, 5 Years' Course.—Of 20 candidates entered the following 8 passed the examination: John M'Call, Ulverstone; Adrian Claude Ashworth, Essex; Peter Morrison Tolmie, Inverness; John Nalton Robson, Edinburgh; Alexander O'Flaherty, Ireland; Hubert Wybrants Powell, Ireland; Vinayak Shantaram Sanzgiri, Bombay; and John Cornoch Hawkes, Cork; and 5 passed in Physics, 6 in Biology, and 1 in Chemistry.

Second Examination, 4 Years' Course.—3 candidates entered, and 1 passed in Anatomy and Materia Medica.

Second Examination, 5 Years' Course.—Of 26 candidates entered the following 8 passed the examination: Graham Smith, Derby; Ernest Fielden Nivin, Canada; Mary Caroline Hamilton, London; William Taylor, Ireland; Frederick Barnes Elwood, Belfast; James Ferguson, Irvine; Percival Thomas Rutherford, Shipley; and Timothy John Vaughan, Co. Donegal; and 1 passed in Physiology.

Third Examination, 5 Years' Course.—Of 22 candidates entered the following 14 passed the examination: Jalibai Bomanji Engineer, Hyderabad; Vamanrao Anandrao Vijayakar, Bombay; Edward Albert Williams, Chester; George Lees Baker, Hastings; Mary Caroline Hamilton, London; Mary Deborah Hancock, Surbiton; Christopher Irvine M'Farlane, Co. Tyrone; William Alexander Huston, Belfast; Wilfrid Metcalfe Chambers, Co. Down; Frederick William March, Bradford; Horace Palmer Margetts, Warwick; George Christopher Grundy, Bradford; Walter Damms, Sheffield; and James Williamson Skelley, Govan; and 2 passed in Materia Medica.

Final Examination.—Of 75 candidates entered the following 34 passed the examination, and were admitted L.R.C.P.E., L.R.C.S.E. and L.F.P. and S.G. Alexander Robb M'Intyre MacIlraith, Cathcart; Joseph Miller Gordon Ewing, Ireland; William MacLaren MacIlraith, Milngavie; John Roberts, Portmadoc; Arthur Gilbert Michelsen Middleton, India; John George M'Leod, Canada; Alfred Lionel Johnston, Belper; James Archer Brown, Ontario; Isaac David, Madras; John Hay Heddle, Adelaide; Frederick Nassau Hughes, Canada; Peter John Fisher Houston, Ontario; Mary Brice Carr, Northumberland; George Christopher Grundy, Bradford; Martin Arnold Gibbs, Melbourne; George Abeyesinhe, Ceylon; Anna Mary Mulholland, Ireland; Sorab Kaikhoshru Engineer, Bombay; Nuno Joseph Rodrigues, Bombay; John Joseph Lawton, Ireland; David Smith, Ontario; Nicholas David Sweetnam, Cork; James Samuel Nelson, Ottawa; John Lawrence Power, Cork; Albert Davies Edwards, Carmarthen; John Forbes Webster, Paisley; Robert Whitson Telford, New South Wales; Edward Tambyah MacIntyre, Ceylon; Ernest Howard Edward Coghlan, Longton; Francis Baillie, Belfast; Dhanjibhai Fardunji Mullan-Feroze, Belgaum; William Frank Hague Ives, London; Edgar Arthur King, Dublin; and Waradana Aralis de Silva, Colombo; and 5 passed in Medicine and Therapeutics, 2 in Surgery and Surgical Anatomy, 5 in Midwifery, and 5 in Medical Jurisprudence.

Recent Literature

CRITICAL SUMMARIES AND ABSTRACTS

MEDICINE

By J. MACKIE WHYTE, M.A., M.D.,
Physician to the Dundee Royal Infirmary

Edinger's Theory as to the Causation of Certain Nervous Diseases.—Ten years ago Edinger propounded a new theory as to the causation of certain nervous diseases, especially neuritis and tabes. (*Samml. klin. Vorträge*, No. 106). While it was received favourably by many, others criticised it with some severity, and now its author has written a series of papers (*Deutsche med. Woch.*, 1904, Nos. 45, 49, 52; 1905, Nos. 1, 4), in which he explains his hypothesis more fully, applies it to a much larger number of nerve-affections, and deals with certain objections. Briefly put, according to him there are nervous diseases which take their origin from the circumstance that under certain conditions the tissues do not recover as they ought after meeting the normal demands made on them in the exercise of bodily function. Such conditions are characterised by simple disappearance of nerve fibres. He classifies the affections of the nervous system as focal diseases, toxic affections, and diseases due to exhaustion of nervous vitality from overuse. The last-mentioned class he names "Aufbrauchkrankheiten," for which there is no one word equivalent in English. It is with this class alone that his theory is concerned, but he makes it very comprehensive, distinguishing three subdivisions, according to mode of origin.

(1) Diseases arising from *extraordinary* demands on the normal nerve tissues and the normal reparative power. Examples: neuritis or atrophy from stress of work.

(2) Diseases in which *normal* function is not followed by adequate repair owing to the previous influence of some poison, such as syphilis or lead. Hence arise differences in the course of the affection. Examples: multiple neuritis (various forms), tabes, combined system affections, certain paralyses.

(3) Diseases in which certain tracts are not developed in a sufficiently stable manner to bear the strain of normal function for a length of time. Examples: the hereditary nervous diseases, most of the combined scleroses, different forms of spastic paralysis, amyotrophic affections of the oblongata and cord, primary optic atrophy not due to tabes, and probably the progressive nervous deafness which occurs in families.

Edinger brings forward some facts, partly experimental, partly pathological, which prove that there is a certain wasting of nerve fibres and cells in the course of ordinary physiological activity. In certain nerves and in certain conditions, it is hardly possible to distinguish this physiological breaking down from a genuine neuritis. As one might expect, those degenerative appearances are specially marked in persons who have died from exhausting diseases. Certain nerves show more granular degenerations than others, especially such as the hypoglossus and the oculomotor, which are almost constantly in use, though it must be borne in mind that some nerves, such as those required for the vital functions (cardiac, respiratory), are more resistant, naturally, than others. Amongst the various forms of neuritis, some differ only in degree from what might be called the physiological condition. They may be seen sometimes in Alpine climbers, or in soldiers after a long march, or in certain tradesmen, such as young smiths. Connected with this is the senile neuritis of Leyden, in which atheroma of vessels is the immediate cause of the break-down of peripheral nerves. Probably, too, neuritis after infectious diseases or in cachectic states, such as anæmia, tuberculosis, cancer, and diabetes, can be best explained by assuming an over-use of badly-nourished nerves. There is no ocular difference between nerve-cells exhausted by over-exertion and those injured by toxines. In the more chronic forms of neuritis from poisons (such as lead, alcohol and arsenic), it is not difficult to trace the effect of exertion coupled with that of the poison. In lead poisoning we have a good example of the way in which certain nerves may undergo special degeneration through over-use, while the whole body is under the influence of the poison. Lead has a special affinity apparently for the motor cells, but why are the wrist extensors singled out in many cases? Edinger ascribes this to the occupation of the patients; compositors and house-painters use their extensors and the small muscles of the hands to an extraordinary degree, and the extensors require more effort to make them contract than do the flexors. A strong young painter makes fifty or sixty strokes per minute, an older man more, so that in a nine hours' day the demand on a small group of muscles is enormous, and in this occupation the supinator longus and the extensor longus pollicis are kept at rest, just those muscles which are apt to escape. In other occupations similar reasons may be found for the selection of certain groups of muscles, *e.g.* in painters on porcelain, typefounders, varnishers, potters. (This has been investigated by Remak, *Arch. f. Psych. und Nerv.*, Bd. 5.)

Alcoholic neuritis probably belongs to the same group,

occupation having in some cases at least an obviously determining influence; but the whole nervous system is so deeply affected in many of these cases that it is difficult to separate the special effects of poison and exhaustion from over-use.

In regard to tabes, Edinger's reasoning is very suggestive. In most cases syphilis has prepared the ground for the development of tabetic symptoms. Men who make special demands on their equilibration are apt to be affected; women, even prostitutes, comparatively seldom. The sensory tracts, especially those conducting impressions from muscles, bones and joints, might be naturally expected on the "over-used" theory to go first. A number of cases are given in which ataxic symptoms showed themselves only after some special exertion of the lower limbs. Cases described by Mott are referred to, in which the seat of the lesion evidently depends on the occupation. Thus one clerk had only cervical symptoms, another had only arm symptoms in the early stages, and later on became affected in the legs. A mounted policeman was first affected in the arm which held the reins. Two cabinetmakers, a carpet-layer and a post-office sorter were also specially affected in the arms. Two tailors had tabes of the legs, but they worked with the sewing-machine.

The last two cases seen by the reviewer were specially affected in the arms, one being a shoemaker and the other a pipemaker. The latter still retains the knee-jerks although he has optic atrophy, lightning pains and other characteristic symptoms.

The function theory gets some support from the facts that tabetics when they become blind often to some extent lose their ataxic gait, and when the blindness is an early symptom, no ataxia develops. This may be attributed to the compulsory rest. Further, the absence of the ataxic form of tabes amongst Orientals, which formerly gave rise to the erroneous opinion that tabes did not occur amongst them, is now put down to their sedentary life. Many of the remaining symptoms of tabes are passed in review, and are believed by Edinger to be explainable on his theory.

General paralysis is next taken up, and is of course regarded as resting on what is essentially the same basis as tabes. In many cases the beginning of the disease seems attributable to some mental shock, or to some brain injury from trauma, over-exertion or otherwise. It is much more frequent in man than woman, in townsfolk than in country folk. But investigations in this field are very incomplete.

Lastly, as to the class of congenital and hereditary nervous diseases, in many it is proved that certain portions of the nervous system are imperfectly developed. Gowers in his

lecture on Abiotrophy simply expresses the view that the badly developed parts tend to degenerate later on, but Edinger thinks that to this one must add the effect of over-exertion. Degenerations might *a priori* be looked for first in the longer tracts as they are least able to bear extra demands, the trophic influence of the cells being less marked than in longer fibres. In adults, pyramidal fibres measure about 60 cm., posterior columnar about 45, and direct cerebellar about 50. Apart from these hardly any tract is longer than 12 cm., if one excepts some slender lines leading from the thalamus and mid-brain to the cord. As a matter of fact one does find spastic and ataxic symptoms very frequently in this interesting class. One can merely mention Strümpell's congenital spastic rigidity of the extremities, with or without mental defect, the cerebellar ataxias, Friedreich's ataxia, progressive muscular atrophy of the family type, as examples whose causation is at least partially explained by Edinger's theory.

Certain practical conclusions may be arrived at as to treatment, as a result of this point of view. In regard to tabetic cases, for instance, Edinger says he gets excellent results by preventing them as much as possible from walking, by directing exercises which do not fatigue, by getting them to urinate every hour, by their wearing dark glasses in sunlight, by putting them to bed for some days at every exacerbation, and by teaching them to dread over-exertion. The various forms of neuritis are of course universally treated as much as possible by rest, the more complete this is the better.

A fixation apparatus gives excellent result in some forms of limited neuritis.

As to objections which may be urged against this hypothesis, Edinger admits that he cannot explain everything, for instance the pains and crises of tabes; but he maintains that the toxin theory is, taken by itself, very destitute of support. He does not so much put his theory in opposition to the toxin hypothesis, but maintains that the latter by itself gives comparatively little help.

SURGERY

By E. SCOTT CARMICHAEL, M.B., F.R.C.S.,
Assistant-Surgeon, Royal Hospital for Sick Children

THE GLYCOGEN REACTION OF THE LEUCOCYTES AND ITS SURGICAL IMPORTANCE

ALTHOUGH Hayem and Patrigen, more than 20 years ago, suggested the value of a blood examination in surgical con-

ditions as an aid to diagnosis, it was not till Cürschmann in 1901 brought it into special prominence that its value has been appreciated by surgeons.

Since his conclusions were published, no subject has been more investigated, or written about, than the blood changes in inflammatory diseases, especially of the abdomen and pelvis.

Like most things new, too much was expected of it in the first instance. Surgeons now realise that it must take its place only as one of many symptoms in a given disease, and that it is of little value, and apt to create errors in diagnosis, if trusted to alone.

The total number of leucocytes indicative of pus formation has been shown to be unreliable, as also the percentage of polymorphonuclears, each of which in turn were believed at first to be most valuable as a single symptom. Longridge and Gulland discarded the total count for the differential count, while latterly Locke, and again Gulland himself, and Goldberger and Weiss, consider the iodophile reaction as the most certain sign of a serious toxæmia.

A paper has appeared recently by Küttner (*Verhand. der deutschen Gesellschaft für Chirurgie*, 1904) giving results which differ very materially from those obtained by the above observers.

Prof. Küttner uses the following method in examining for the glycogen reaction. A drop of blood from the ear or finger is spread on two cover-glasses, which, while still moist, are exposed in a closed vessel to the vapour of a few iodine crystals, and then dried. The advantage of this method he claims to be one of greater sharpness of staining, although after a few hours the characteristic reaction of the leucocytes becomes indistinct.

He records 470 cases examined in the Tübingen Klinik, from which he makes the following deductions as to the value of the glycogen reaction.

In answer to the question, "Does the presence of a marked glycogen reaction warrant the diagnosis of the onset of an acute suppuration?" he says emphatically "No."

All forms of acute inflammatory processes were examined, and only one fact can positively be stated, namely, that in each case of acute inflammation already diagnosed from clinical symptoms, a larger amount of glycogen was present in the leucocytes. The reaction was equally well marked in cases whether suppuration had already occurred, whether the inflammation subsided without suppuration, or went on later to abscess formation.

In all cases of appendicitis the reaction was positive if peritoneal irritation was present, and there was no appreciable difference in cases suppurative or otherwise.

The larger the number of observations he made, the less value he attached to its significance, as a simple case of acute enteritis caused the same degree of iodophilia as a diffuse fatal peritonitis.

Not only did the glycogen reaction fail as a diagnostic means in intra-abdominal conditions, but also in superficial inflammations, glandular abscesses, etc.

The absence of the reaction alone may be of importance, but even in this relation a negative result was obtained in cases where large abscesses were present.

Only in tuberculous cases did results agree. In pure tuberculous cases the reaction was absent, and any marked degree of iodophilia denoted the presence of a mixed infection, although in many cases of undoubted mixed infection, as for instance in tuberculous fistulæ, it was absent.

Küttner thus concludes that Ehrlich's glycogen reaction is of no surgical diagnostic value whatsoever. Of its prognostic value he speaks less sceptically.

In acute peritonitis, in which the iodine reaction increases with a fall in the number of the leucocytes, the prognosis is bad.

If, after opening an acute abscess, a previously well-marked glycogen reaction disappears, one is justified in concluding that there is a complete cessation of the inflammatory process. If it does not disappear after three days, some disturbance in the natural healing must be suspected.

After aseptic operations, even though a high temperature supervene, if the glycogen reaction be negative, the dressing need not be interfered with.

The slightest wound infection gives a definite glycogen reaction.

In cases of joint resection it is often useful where, for the sake of the result of operation, it is advisable to delay changing plaster of Paris bandages.

OBSTETRICS

By H. OLIPHANT NICHOLSON, M.D., F.R.C.P.,

Assistant Physician to the Royal Maternity Hospital, Edinburgh; Obstetric Physician, New Town Dispensary, Edinburgh

The Blood in Pregnancy.—From the time of Morgagni there have been many observations made on the constitution of the blood in pregnancy, and yet no uniform conclusions have been obtained, even in the hands of those working with modern methods.

The more recent work on the subject may be roughly classified in three groups:—1. An undoubted diminution in the amount of hæmoglobin and the number of red cells. 2. A diminution in the number of red corpuscles with a simultaneous increase in the amount of hæmoglobin. 3. No change; while some investigators hold that the constitution of the blood depends upon the general health of the individual, being poor in red cells and hæmoglobin where the patient is feeble, while it is unchanged in normal individuals. With regard to leucocytes, the fact that pregnancy leads to leucocytosis has been constantly observed and confirmed.

In view of the unsettled state of the whole question, William Lawton Thompson (*Johns Hopkins Hospital Bulletin*, June 1904) made observations on twelve patients in the obstetrical department of the hospital. The observations cover a period of seven months, and each patient was examined once a month from the time she was first seen. Two cases came under observation at the second month; two at the third month; four at the fourth month; three at the fifth; and one at the sixth. Four of the cases were followed throughout pregnancy and subsequent delivery; the other eight are still under observation. The monthly examination included: (*a*) enumeration of the red blood corpuscles; (*b*) estimation of the hæmoglobin percentage; (*c*) count of leucocytes; (*d*) differentiation of leucocytes; and (*e*) determination of specific gravity of the total blood content. The series comprises thirty-three separate blood examinations, representing a total of 165 various estimations.

In the author's series the red blood corpuscle count was high at the extremes of pregnancy, and the hæmoglobin, as early as the second month, was low. Later on, however (end of seventh month), the hæmoglobin began to increase, until at the eighth and ninth months it had risen 20 per cent. higher. With regard to the leucocytes, with Grawitz' standard of 10,000 as the criterion, the majority of the cases in the different months of pregnancy showed a *slight absolute leucocytosis*. The specific gravity was determined in all the cases, and the gravity of the total blood content (not of its serum) was obtained. In the middle months of pregnancy the specific gravity of the blood is lowered, and there is a corresponding decrease in the red blood cells. It is possible that this reduction in specific gravity is due to a decrease in the albuminous elements of the red corpuscles, for the drop is not due to the fall in the hæmoglobin. In view of Slemons' work, the author thinks that the low specific gravity of the blood in pregnancy is due to an admixture of water in the plasma, a hydræmia,

and that the terminal rise in specific gravity as labour approaches may possibly be due to the marked diuresis which occurs at that time. As to the results of the investigations: (1) a moderate decrease was observed in the red corpuscles rather early in pregnancy, remaining throughout the middle months and rising again to normal at the termination of pregnancy—not, however, in all cases; (2) a low percentage of hæmoglobin, constant throughout the first seven months, rapidly approaching normal as pregnancy draws to a close; (3) a slight absolute leucocytosis exists in every case of pregnancy, but this does not support the theory that it is due to any positive chemiotaxis; (4) there is no variation from normal in the different forms of colourless corpuscles, the leucocytosis affecting all forms of white cells alike; (5) the specific gravity is high at the onset of pregnancy, diminishing by progressive steps, to reach its lowest level in the middle months, rising to normal at term.

Thrombosis of the Internal Iliac Vein during Pregnancy (F. C. Goldsborough, *Johns Hopkins Hospital Bulletin*, June 1904). —Thrombosis of the vessels of the lower extremities during pregnancy is of very infrequent occurrence. In the few cases reported, the statements concerning its etiology are scanty and unsatisfactory. The present case is put on record because definite statements can be made regarding the etiological factors concerned.

The author has carefully reviewed the literature on the subject of this condition, and can only collect ten cases of phlebitis occurring during pregnancy. In none of these cases was the etiology clear. In most of the cases only one leg was affected; in two the thrombosis occurred in both legs, and the authors—Bonnet-Laborderie and Gupat—ascribed the condition to the toxæmia of pregnancy in association with chronic anæmia resulting from paludism. In two cases pregnancy terminated spontaneously at the fifth and eighth months, in six the patient went to term, and in two no information on this point was available. In only two instances did the patients suffer from fever, and all the cases recovered with rest and immobilisation of the affected part.

The author's case occurred in a white woman, twenty-nine years of age, who was admitted to the hospital complaining of constipation, nausea and vomiting, and swelling of the left leg. Her family history was negative. The pregnancy, which was the first, had been practically normal until four days before admission to the hospital, and the patient up to that time had successfully concealed her condition by wearing a specially con-

structed corset which firmly compressed the abdominal enlargement. A week before entering hospital she had to go to bed on account of marked œdema of her left leg, and during this time the bowels did not act. The left leg was enormously swollen from the groin to the toes, but the surface temperature was not increased, nor was it painful on pressure. The pulse was 80 to the minute, and of moderate pressure. No sugar or albumen was present in the urine. For forty-eight hours after admission the nausea and vomiting persisted, no nourishment was retained, and the patient's condition, in spite of a low pulse and normal temperature, was obviously becoming serious. Therefore, with the object of inducing labour, a De Ribes' bag was put into the uterus, and acted efficiently for ten hours, when unfortunately it burst long before the full dilatation of the cervix. The pains then disappeared. As the patient appeared considerably worse, the cervix was dilated by the Harris method, and the child delivered by version. There was a great deal of hæmorrhage, and the placenta had to be removed manually. Ten hours later the pulse became rapid, vomiting again set in, and death occurred fifteen hours after delivery.

At the autopsy the lumen of the left common iliac vein was found completely occluded where it was crossed by the left common iliac artery, and from this point the thrombus extended through the external iliac vein to the femoral and saphenous veins. The thrombus stopped abruptly at the point of compression, and above this the vessel was perfectly normal. No bacteria were discovered in suitably stained sections of the thrombus, and cultures taken from the blood of the heart were absolutely negative ; thus one could fairly eliminate the possibility of a bacterial origin. The author thinks that the cause of the thrombosis was the pressure which was brought to bear upon the retro-peritoneal structures by the corset which the patient wore to disguise her condition. The corset forced the uterus against the lumbar vertebræ, and, by pressure on the veins in that neighbourhood, interfered with the return of the blood.

The Molecular Concentration of the Blood and of the Urine in Pregnancy in the Puerperium and in Eclampsia (Ralph Waldo Lobenstine, *American Medicine*, October 15, 1904). —After reviewing the various hypotheses concerning the nature of eclampsia, the author believes that the renal origin theory is the most widely accepted one. In order to ascertain, if possible, whether or not the kidneys are primarily responsible for this affection, he made a series of cryoscopic examinations of the blood and urine, (1) in pregnancy, (2) in the puerperium, (3) in

eclampsia. This subject has been pretty fully worked at, and Zangenmeister, in his exhaustive monograph on the blood of parturient women, gives the following results of his analyses with the cryoscope:—(1) A lessened concentration of the blood during pregnancy; no change in the urine. (2) A concentration of the blood that is still below the normal average during the puerperium, the urine showing virtually no change. (3) In eclampsia, the average concentration of the blood is found to lie well within normal limits; molecular concentration of the urine somewhat increased before the attack, slightly decreased during the attack, and again increased after it. Zangenmeister thinks that these urinary changes may depend largely, if not entirely, upon the alterations in the circulation of blood through the kidney. He concludes that the blood in eclampsia shows no uræmic origin, and practically no change in its molecular concentration. Dr Lobenstine used the Beckman apparatus, and as a summary of the various examinations he states: (*a*) that there is a marked diminution in the molecular concentration of the blood in pregnancy; (*b*) there is also a diminution in the concentration of the blood in the puerperium; (*c*) in eclampsia the molecular concentration of the blood is not increased; (*d*) the urine shows no marked change in its freezing-point, either in pregnancy, in the puerperium, or in eclampsia. He draws the following deductions:—(1) There is no evidence of renal inactivity, nor of renal retention in eclampsia—that is, there is no retention of *crystalloidal* urinary products. (2) If there is a renal retention, it must be a retention either of *colloidal* substances, which may come from either fœtus or mother, or of crystalline substances too small in amount to affect the molecular concentration of the blood. (3) Both clinical facts and experimental research lead one to believe that eclampsia is an intoxication in which both mother and fœtus have a share, but what these toxic substances are, and what part the syncytium may play in their formation, it is at present impossible to say.

The Urinary Elimination in the Course of Uncontrollable Vomiting of Pregnancy (M. A. Schwab, *Presse Médicale*, October 5, 1904).—It is now pretty generally agreed that the persistent and grave form of vomiting sometimes met with during pregnancy is dependent upon an auto-intoxication. This may arise from maternal or fœtal sources. The symptoms may, at times, suggest hepatic or renal insufficiency, or the intoxication may appear to be of intestinal origin. Some German authors say that in serious cases the origin is in the embryo itself. Mettey (*Thèse de Paris*), has studied the subject from a new aspect, and has

made important investigations regarding the urinary elimination in the course of these cases. In this way it is possible to obtain some information as to the manner in which the processes of metabolism are going on, and as to the functional activity of the liver and kidneys.

In the course of such cases the quantity of urine is often diminished, and when the condition improves there is an increase. Roger and Jeanselme have noted an increased toxicity of the urine coincident with an alimentary glycosuria, which points to a hepatic derangement. The elimination of urea is diminished, while the output of uric acid is increased. Bonnaire likewise showed that the chlorides were diminished, and it was further noted that the diminution in both urea and chlorides becomes more marked the more the patient emaciates. From the observation of six cases the following results are given :—(1) The diminution of the chlorides was constant. (2) The diminution of the phosphates was also constant, but was within narrower limits. (3) The quantity of urea was normal in two cases, and decidedly diminished in the other four cases. (4) The quantity of uric acid exceeded the normal output in three cases; it was normal in two cases, and less in one case. The relative proportion of uric acid to urea rose considerably in four cases, and fell in another case; the relative proportion of phosphoric acid to urea was normal in three cases, and increased in the other three. Indican was present in four cases, and sometimes traces of urobilin or acetone were detected.

MEDICAL JURISPRUDENCE

By CARSTAIRS DOUGLAS, M.D., B.Sc., F.R.S.E.,
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Railway Accident Litigation.—In a recent number of the *Medical Record* of New York there is a paper on this subject by Dr John Punton (a medical referee of wide experience in the United States), in which he discusses in some detail the question as to why railway companies so often lose the actions for damages that are raised against them. He deplores the enormous increase in these actions in America during the past decade, and seeks for a reason why the pursuer so often wins. One of the primary causes of this increase in lawsuits is the existence of a class of lawyers of most inferior class (such a pettifogger is designated in the States by the term "snitch"), who flock to the scene of an accident and almost force their

services on persons however slightly injured. The "snitch" associates himself with another undesirable person, viz., a man holding some sort of medical degree, however worthless, and who can go into court and be accepted as a reputable medical witness. These worthies make a dangerous combination, being undeterred by any scruples as regards false testimony. A further evil arising from this practice, too often successful, of raising actions, has been to call into existence a class of rogues who make it their business to counterfeit injuries, and who have invented the most novel tricks for the purpose of defeating trustworthy medical examinations. This medical malingering constitutes a great evil, and its successful practice reflects on the ability of medical men to detect fraud. Unfortunately, too, medical men of ordinary good repute, nay, sometimes of high standing, may, through ignorance or thoughtlessness, become associated with these dubious cases; and this procedure of theirs not only brings on them the severe censure of their more ethical brethren, but brings discredit on the whole profession, and leads to responsible medical evidence being looked upon with much distrust, and even ridiculed in a court of law.

Dr Punton pays a high tribute to the railway companies, not one of which, he says, has ever asked him to favour them unduly, or to become biassed in his judgment on their behalf. He was simply asked to report on each case on its merits. He desires to put this on record, because there is a very general feeling that medical experts retained by the railway companies are simply tools in the hands of the latter, and that their evidence is entirely biassed and destitute of all honest intention.

It is easy to understand how, under such conditions, damage-actions should be very common, but it does not appear on the surface quite clear as to how the railway companies lose them so often. The conflicting medical evidence is often blamed for this, but a still more important cause is the ignorance of the lawyers who examine and cross-examine the medical witnesses. This is, in Dr Punton's opinion, the crux of the whole matter; the want of grasp of ordinary technical details on the part of the lawyers leading to medical confusion, and resulting only too often in not only loss of the case, but in the railway company being cast in quite exorbitant damages. Without underrating the high technical legal knowledge often possessed by members of the bar in matters pertaining to their own department, the writer maintains that the medical knowledge of such a lawyer is often woefully inadequate, and that the medico-legal department of the great railway organisations is the weakest part of the chain in their whole connection. As a result of this,

the lawyer is often quite unable to refute or criticise an obviously absurd and manufactured answer to a medical question, and the error, undetected, goes on to the jury as truth. For example, a lawyer, eminent in other respects, asked a quack doctor who was giving evidence on behalf of a malingerer, what his diagnosis of the case was. "Traumatic injury with general results," was the cool reply. This answer was obviously a most equivocal one, worthless even from the medical point of view, yet the lawyer had not enough medical knowledge to demonstrate its fallacy, and it was accepted by the jury, who found for the pursuer to the tune of several thousands of dollars. To give another instance, a doctor maintained that the person (pursuer) for whom he was called was suffering from paralysis of all the cranial nerves, and that the fifth nerve supplied the face, neck and arm with motion. The railway lawyer failed to see how absurd this answer was, and the pursuer obtained a verdict for ten thousand dollars. (No doubt this new exponent of the physiology of the nervous system shared very handsomely in the plunder.) A third example was that of a man whom the writer examined to determine whether, although suffering from paralysis agitans, he was mentally fit to sign a contract. As a matter of fact he had done so, had failed to carry it out, and now was sued; the plea was that as a result of his illness he was defective in mind. The writer stated that he was perfectly clear in his mind; indeed he was a shrewd business man and had acquired a good deal of money. Yet when this case came to court, a medical witness gave in evidence that in twenty years' practice in a sparsely populated area he had had at least a dozen cases of paralysis agitans, *all* of whom were thereby rendered *non compos mentis*. Now this is contrary to all medical experience, yet the lawyer cross-examining failed to recognise the gross improbability of such a statement being true (though he was supposed specially to have got up the case), and it went unchallenged to the jury. The defaulting contractor won his case.

What remedy, then, is to be proposed for this unfortunate state of affairs? Dr Punton believes that the only satisfactory plan would be to establish a *medico-legal board* in connection with every great railway company, which would be composed of several medical and legal experts, who would go over every case before it came to court, and who would mutually help one another. The lawyers would thus be well "coached" in each particular case, and the medical men instructed in all the important technical legal points. As it is, there is at present no such concerted action on the part of any of the great American railway organisations; the medical staff consists of many scat-

tered practitioners, with a surgeon-in-chief who is too busy at headquarters to be able to supervise the investigation of an accident claim two thousand miles away; while the legal business too often devolves on some local firm of lawyers, in a country town, perhaps, who make, it may be, a gallant fight, but are crippled for want of strong expert support. Another matter that requires attention is the way in which lawyers not infrequently neglect or belittle the medical opinions of their own side. Forgetting that, after all, if a man is damaged in a railway accident, it is the medical evidence that is of paramount importance in settling the case, the lawyer may try to carry the whole thing through single-handed, with the result that the acute lawyer and unscrupulous practitioner on the opposite side prove far too strong for him. Lastly, a hint is given to the railway companies to pay their medical staff and medical experts a little more liberally than they do. In this country, happily, things are not quite so bad; the legal and medical charlatans are plants that do not get much opportunity to blossom in the atmosphere of our courts of law, and the whole process of investigation and litigation is more centralised than in the States; but there are, nevertheless, points in Dr Punton's paper worthy of being taken to heart by any of us whose professional work takes us into the witness-box in connection with cases of railway or other accident.

Death from Empalement.—In a recent number of the *L'Écho Médical du Nord* (Nov. 27, 1904) there appears an exhaustive article by Dr G. Potel, late chief of the surgical clinique in Lille. Death from this form of violence is not usually treated of by itself in works on legal medicine, but is considered simply as one of the varieties of lacerated or contused wound. In his paper, Dr Potel has collected many matters of interest connected with the subject, and treats of it in great fulness. He mentions that, as far as punishment is concerned, it was usually reserved for the most heinous crimes, and for the most depraved and recalcitrant offenders against the law. It is an ancient punishment, for Virgil sings of it in the Æneid, and it was well known to Nero. In races of deficient civilisation it remained long in use, being employed by the Turks as a specially deterring form of punishment—the body of the victim being left on the spikes till reduced to a skeleton; while it is but a few years ago that the King of Dahomey, it is reported, executed two of his subjects in this way for stealing letter-bags. In civilised countries we meet with death from empalement only as criminal or accidental, the former of these being very rare. It should be mentioned that by empalement some mean the

penetration or transfixion of any part of the body by some more or less pointed object, other than a pointed weapon. Potel, however, narrows the term so as to mean only those cases where the lesion is produced by a fall on a pointed object on the "seat"—perineum, anus, or genital organs. Among cases of a criminal character (which are not common) may be cited the instance quoted by Deubel from the *Wochenschrift für der gesammt. Heilkunde* (Berlin, 1837), where a girl of 14 was made the subject of an outrage by two boys, who forcibly pushed a pointed stick into the anus. The rectum was penetrated on both anterior and posterior walls, peritonitis resulted, and death occurred in twelve hours. In another instance, given by Chattergee in the *Indian Medical Gazette*, a man of 20 had a stick driven into the anus with such force that it penetrated the anterior rectal wall, tore through the mesentery and diaphragm, and entered the anterior mediastinum, 23 inches from the point of entrance, with fatal results. To give one more instance, Chopart, in his *Traité des Maladies urinaires*, quotes the following case, reported by Willison:—A blacksmith attacked a young man with a rod of red-hot iron, striking his perineal region with it with such force that it entered the anus, traversed the pelvis, and emerged just above the pubis. Willison treated the man, who recovered after six weeks, having had a vesico-rectal fistula.

Accidental empalement is much more common. The writer has collected a large number of cases, many from other places, and a few which he had seen himself. They occurred at all ages, from 6 to 52, the majority being in young and probably imprudent persons. Out of 118 cases, he found that 87 occurred in males and 31 in females, the ratio being therefore roughly 3 to 1. As regards etiology, it may occur in a large number of ways, the essential point in each being a fall on the perineal region on a more or less pointed object; or it may occur from sliding down a banister, the descent being arrested by a projecting nail or splinter. Some cases are very striking. For example, Kubella and Schaum report the case of a young woman who, while dancing, was raised high in the air by her partner. In her descent she fell on a cane carried by another man, and the top of this entered the rectum, perforated it, and caused a wound 30 cm. long. At the autopsy the head of the cane was found in the rectum. Another case, reported by Hutchinson, shows how little force may cause a grave lesion. A young woman stumbled upon a slender broom in such a way that she fell upon it, so that the somewhat pointed handle entered the anus, perforated the rectum, traversed the abdomen, wounded the liver, and pierced the diaphragm. Death resulted several hours later. Another instance of a slight injury causing grave results is recorded by

Ecochard in his thesis. A man was bending down, engaged in trying to extract a splinter from under his nail. A little girl pushed him over, for a joke: he fell, in a sitting posture, on a tooth of a rake (possibly a large hay rake), and the latter perforated the rectum, causing death in 36 hours.

The parts most liable to be injured in empalement are as follows:—Of 117 cases collected by the writer, the injury was in the anus and rectum in 66 instances (56 per cent.); the perineum was perforated 23 times (20 per cent.); the scrotum was the route in 13 cases (11 per cent.); while the wound was by the vagina in 15 cases (12 per cent.). In the first group the anus may or may not be lacerated, and the perforation may be ano-rectal with integrity of the peritoneum, or into the peritoneal cavity. The latter is both the more frequent and the more dangerous, the wound often taking place so that the bladder and peritoneum are perforated close together. Potel himself had a case closely like this in 1903: a boy while playing fell, sitting on a piece of wood with a pointed projection. He felt sharp pain, and was taken home and put to bed: the temperature rose, the belly was distended, and on the fifth day urine escaped by the anus. The latter showed not a scratch, but there was on the anterior wall of the rectum, 8 cm. from the orifice, a wound 2½ cm. long. By careful attention to the bowels, and frequent irrigation per rectum, healing was obtained, and in three months the boy had no trace of his accident.

Empalement by the perineum occurred in 20 per cent. of the cases collected, and usually when the victim fell on a distinctly sharp object. The wound was often slight; in some cases, however, it went deep, damaging bladder and rectum. In the third division were placed those cases where the entrance was by the scrotum. The wound might be considerable, the testicle laid bare, and thereafter the penetrating object might pass upwards in the subcutaneous fat, perhaps as far as the umbilicus, wounding neither skin nor peritoneum; or it might pass under the pubis near the root of the penis, and enter the pelvis—a much more serious event. Lastly, in the case of women and girls, the foreign body may enter the vagina. This happens not unfrequently when the end of the impaling instrument is somewhat rounded; it then is directed in and up by the thighs, and naturally strikes the vulva. In not a few cases there is merely bruising of the pudenda; in a certain number the vagina is traversed, the fornices perforated, and the abdomen entered.

The symptoms of such an accident as empalement call for no special comment; the diagnosis is in some cases obscure, especially if no external injury present itself, and the prognosis is always very guarded. Out of 118 cases there were 44 deaths,

64 recoveries, and in 10 the result was not known. Classifying these cases according to both seat of injury and result, we have:—

	Cases.	Deaths.	Recoveries.	Unknown.
Empalement by rectum	67	28	35	4
„ perineum	23	8	14	1
„ vagina	15	6	7	2
„ scrotum	13	2	8	3

With reference to treatment, it may be said that many cases, even where the rectum or bladder is perforated, require no major surgical interference. If the parts are kept clean, natural healing frequently follows. When the peritoneum, intestines, or internal viscera are wounded, early laparotomy is called for, and the same applies to cases where a foreign body is left in the abdomen.

(Suicidal empalement, knowingly done, is very rare. In most cases the empalement is merely an accident in the course of the suicidal attempt, as where a person throws himself out of a window, and falls on a railing or similar structure.—C. C. D.)

New Books and New Editions

The Treatment of Nervous Disease. By J. J. Graham Brown, M.D., F.R.C.P., F.R.S.E. Pp. 464. Edinburgh and London: William Green & Sons. 1905. Price 15s.

The idea which underlies the structure and arrangement of these lectures is, as stated in the preface, "that the physiological function of the particular part of the nervous system, which in each case happens to be affected, determines the variety of treatment required. Consequently, in the case of all the lesions of any particular set of neurones identical or analogous in function, there is much in common as regards the therapeutic measures which ought to be adopted." "Following this physiological arrangement," the author has found it possible "to group the various diseases, as regards treatment, under the heading of that set of neuronic fibres which, in each instance, is chiefly and mainly involved." It will then be sufficient to describe in detail the treatment of one or two typical diseases in any group: it will not be difficult to see what the line of treatment should be in the less common disorders affecting the same neurones.

Lecture I. deals with the ætiology of nervous diseases and with the important subject of prophylaxis: great emphasis is

laid on the proper training and management of neurotic children. In Lecture II., toxic nervous disorders are considered: the varieties of toxic agents, their mode of action, the theory of antitoxine action as exemplified by tetanus, etc. Besides the general treatment of these toxic diseases, details of the treatment and management of chronic alcoholism, the morphia habit and syphilitic nervous diseases are fully described. In Lecture III., "On the treatment of peripheral paralysis," all forms of paralysis resulting from lesions of the peripheral motor neurone are considered, *e.g.* multiple neuritis, facial paralysis, acute anterior poliomyelitis, progressive muscular atrophy, bulbar paralysis, etc. A special section is devoted to the different uses of electricity and the modes of application. Lectures IV. and V. deal with the various forms of paralysis resulting from lesion of the upper motor neurones. These are considered mainly under two headings, as regards causation: (*A*) those in which micro-organisms or their toxines are ætiological factors of first importance—so-called system diseases of the cord, disseminated sclerosis, myelitis, infantile cerebral paralysis, etc.; and (*B*) those in which the upper motor neurone suffers from pressure, sudden or slow, exercised in the brain or in the cord—cerebral hæmorrhage, chronic hydrocephalus, brain tumour and abscess, hæmatomyelia, tumour of spinal cord, Pott's disease of the spine, etc. In Lecture VI., irritative diseases of the upper motor neurone are discussed, notably epilepsy, idiopathic and symptomatic, infantile convulsions, chorea; tetany is also included, as a matter of convenience. Lecture VII., "On the treatment of lesions of the sensory neurones," gives a sketch of the probable course of the fibres conveying pain and of the causation of pain. Details of treatment of trigeminal neuralgia, sciatica, the lightning pains of tabes and migraine are given. Lecture VIII. deals with the treatment of disorders of co-ordination and equilibration, ataxia and vertigo — more particularly tabes and Meniere's disease. The remaining two lectures are devoted to the treatment of functional nervous disorders, viz., neurasthenia and hysteria.

Throughout the book, from the first lecture to the last, one feature stands out prominent — and indeed this follows necessarily from the physiological grouping of the various nervous diseases—viz., the pathogenesis of the disorder under consideration is kept clearly before the reader. Great emphasis is laid on the causes and causal treatment; more especially, the great rôle played by toxines in the causation of nerve disease is clearly defined on almost every page. Enough of physiology is given to enable the reader to understand clearly the effects of disturbance of a particular neurone: nothing could be clearer

or more admirable, for instance, than the epitome contained in Lecture VIII. of the mechanism of co-ordination, of the results of its disturbance, and of the principles underlying the use of compensatory exercises in ataxia. Again, the consideration of principles, which guide one in the use of electricity, is excellent (Lecture II.). It is, indeed, with the great principles of nerve treatment, so far as they are known, that the book deals, first and foremost. "It is only by endeavouring to grasp these . . . and the indications for and limits of usefulness of those remedies, the action of which we only know empirically, that we can treat wisely such diseases of the nervous system as may fall under our care." The book, however, is not lacking in details of treatment, where such are required, *e.g.* in the case of brain tumour, epilepsy, tabes, syphilitic disease, neuralgia, etc. In each case, so far as our present knowledge goes, the mode of action of various drugs and other remedial measures is considered. In nervous diseases, as in disease generally, it is no doubt true that our use of drugs is mainly empirical, but it must be remembered, as Gowers has emphasised, that this does not imply that such treatment is irrational. In any case we feel confident that a careful perusal and study of this book, such as it deserves in especial degree, will enable the reader to take an intelligent view of the treatment and general management of nervous cases, and, further, to grapple with this oft-times difficult task in a more hopeful spirit than is often found. It cannot be denied that there is a great tendency to conduct the treatment of a nervous case, or at least of many nervous cases, on mere routine principles, and with little confidence in the efficacy of measures advised, and this lack of confidence reacts disastrously on the nervous patient above all others. While it is possible to hold too sanguine views, the opposite is usually the case. And yet, some of the most brilliantly successful results of active treatment are to be found in the domain of nerve disease, while it is still more true that we can do good, far above what we can measure, by proper prophylaxis, especially in childhood. We would specially commend to the reader's notice the thoughtful and wholly excellent introductory lecture of our author on the characteristics of neurotic children, the risks attendant on their upbringing, and the lines along which their training and management should be conducted.

We heartily commend this book. It is not an exhaustive work, as is evident from the first clause of our review. It will, we think, be found that there are no important omissions. One might criticise certain details in the treatment of the subject, more especially the relative values assigned to different remedial measures in particular diseases, but these are of very minor

importance compared with the general value of the work. The reader will find it eminently readable and suggestive: it is written in a simple and clear style, and the letterpress is specially worthy of commendation. A good index is appended.

Autobiography of Frederic James Gant, F.R.C.S., Consulting Surgeon to the Royal Free Hospital. Author of works on Surgery, Science and Religion, and Women of the Times. Pp. 200. London: Baillière, Tindall & Cox. 1905.

AN eager, strenuous face, with deepset eyes and aggressive nose and chin, is the frontispiece facing the somewhat quaint title-page of this little volume of autobiography. The face and the page prepare us for the contents of the book. They tell of early struggles faced with courage. His connection with the Royal Free Hospital and the gallant attempt made to have it recognised as a teaching school is an interesting bit of history. Messrs Cæsar Hawkins, South, and Guthrie visited the premises and inspected the teaching appliances and refused it the recognition of the Royal College of Surgeons, and this strangled the infant school, and its pupils, fifty in number, were transferred to the Middlesex. The list of the staff who would have taught, had the recognition been given, is interesting to us Edinburgh men, as Robert Knox was to teach Anatomy, descriptive and surgical; Mr F. J. Gant was to take Anatomy and Physiology; Dr Glover, Chemistry; Dr Hassall, Medicine, and a few special lectures on the Chemistry and Pathology of the Urine; Wakley and de Meric, Surgery; and Dr John Rose Cormack, Forensic Medicine—not a bad bill of fare, deserving of a better fate. The summer teachers of Midwifery were to have been Tyler Smith, Barnes, and Henry Bennet.

Gant loyally stuck to the Royal Free Hospital till his retirement in 1891. He held the post of senior-surgeon for thirty-seven years. During this period his name has been honourably associated with the progress of surgery and his surgical works are numerous and well known. This little work does not enter into his surgical life to any extent, but rather gives glances in a queer, ill-arranged, desultory manner of the many side interests and extra bits of work done by Mr Gant. At one time he was much interested in pedestrianism, and seems to have been trainer and medical adviser to some of the great *walkers* who plodded their dreary rounds fifty years ago. He went out to the Crimean War and did good service in field and hospital. He wrote on the evil effects of over-fattening of prize cattle. At the age of 61 he fell in with the writings of Frederick

Denison Maurice, and under the influence of that great teacher and thinker wrote books which combined religion and philosophy. He worked hard at reform in the College of Surgeons. He taught the women students when the doors of the Royal Free Hospital were opened to the students of the London Medical College for Women. In fact, Mr Gant has proved himself a many-sided, much-enduring man, doing his best, as he saw the best, for his profession and the world. Some curious and sad glimpses are given of his domestic life. His relation to the questions of the Modern Nurse, her rise and progress, and on the question of State Registration are somewhat difficult to follow. Perhaps his own mind was not quite made up. Mr Gant seems to have met with a varied assortment, not all angels. We trust Mr Gant may be long spared to enjoy his well-earned rest after a strenuous life.

The Surgical Treatment of Bright's Disease. By GEORGE M. EDEBOHLS, A.M., M.D., LL.D. New York: Frank F. Lisiecki. 1904.

TO Dr George M. Edebohls belongs the credit, if it be credit, for the introduction of operative interference in chronic Bright's disease. He introduced this measure to the profession in April 1899, and by a strenuous advocacy of its value, supported by a facile pen, he has forced upon medical men the necessity to, at the least, give the subject consideration. He has written several papers in which he gives the reasons for his adoption of the operation, and in more or less detail reports the results immediate, and so far as elapsed time permits, remote, of the cases upon which he has operated. His contributions to the literature are here collected and arranged in chronological order, and make up two-fifths of the volume—the remaining three-fifths is entirely new matter and deals chiefly with the results of treatment. This latter portion of the book is most valuable at the present stage of the operation, as it consists of detailed reports of seventy-two patients operated upon by the author for chronic Bright's disease up to the end of 1903. To analyse these in a review would be futile, as to attain a true appreciation of their value it is necessary that they should be carefully considered by those who wish to have a sound idea of their significance. It may be remarked, however, that many of them seem to bear out the thesis of Dr Edebohls, that the operation of renal decortication has a marked effect in alleviating and even in curing the disease. In this Journal various summaries have been given of the work done surgically in chronic nephritis ; and

while the criticisms in these are still valid, it must be admitted that the work of Dr Edebohls goes far to substantiate his claims for the efficacy of renal decortication; nevertheless, few physicians, we fancy, will agree with his more recent dictum, that it should be advised "for every sufferer from chronic Bright's disease who has a reasonable expectation of not less than a month of life without operation." Further, we think that in the analysis of results it would have been fairer and have strengthened his case more had the author given only those cases which he treated after the operation was adopted solely to treat chronic Bright's disease. These cases are sixty-eight in number, with seven deaths in less than two weeks; and twenty-one deaths, fifteen of which occurred in less than one year, and six in less than two years. Of the forty still living, thirteen were operated upon less than one year ago. On the other hand, Table IV., page 315, is of much importance and greatly strengthens the author's contention of the utility of the operation.

A bibliography of the literature on the subject is given at the end of the work, and there is also an excellent index.

The profession owes the author a debt of gratitude for bringing his work up to date, and placing it in a form which enables physicians and surgeons to readily become conversant with the most recent surgical work upon this important disease. Whether right or wrong in his estimation of the ultimate value of renal decortication as a therapeutic measure in chronic Bright's disease, the author is deserving of praise for the *now* complete manner in which he has published the result of his work on the subject.

On the Development and Anatomy of the Prostate Gland, together with an account of its Injuries and Diseases and their Surgical Treatment. By W. G. RICHARDSON, M.B., B.S., F.R.C.S. London: F. & A. Churchill. 1904.

THE trustees of the Heath scholarship selected as the essay for 1904 the above subject, and the prize was awarded to the author for the work under review. Mr Richardson describes the anatomy of the prostate in a thorough manner, and also discusses its development and comparative anatomy very clearly and succinctly. These portions of the book are profusely illustrated, and the illustrations are exceedingly well done, but it is unfortunate that they do not face the corresponding portions of the text, but are scattered throughout the book. The relations of the levatores ani to the prostate are described, but more attention might have been given to that muscular band recognised especially by French anatomists as the recto-urethral muscle.

The author believes in the presence of a middle lobe of the prostate as a definite entity. "A portion of the gland which lies behind the urethra below the outlet of the bladder, and above the canal for the ejectulatory ducts, this portion discharges its secretion into the V-shaped area at the back of the urethra close to the outlet of the bladder, and it is continuous on each side with the lateral lobes."

The latter half of the book is devoted to the consideration of the diseases of the prostate, and naturally chronic enlargement with its secondary results and the operation of prostatectomy constitute the chief part of this portion. The author advocates the suprapubic route and clearly describes the operative technique. The vacuum pump suggested and figured does not seem an improvement upon that originally devised by Mr Cathcart. A table of thirty-four cases of suprapubic prostatectomy is given at the end of the volume with six deaths (17.5 per cent.) and three permanent fistulæ.

This book is practical and scientific, and Mr Richardson, as well as the University of Durham, is to be congratulated upon producing a valuable addition to the literature of the important subject, the prostate.

Enlargement of the Prostate. Its Treatment and Radical Cure. By C. MANSELL MOULLIN, M.D. Oxon., F.R.C.S. Third Edition. London: H. K. Lewis. 1904.

MR MANSELL MOULLIN'S book is full of valuable matter, and yet it falls short of being a satisfactory work either for study or reference. It is full of references to the works of other men, and of the author's personal views and experience, but it is put together as if the author had adopted headings and written under these without guarding against repetition. The essential and more important facts are not put before the reader in such a way as to attract his attention. In a book published in 1904, we expected more definite knowledge regarding operative interference in those conditions which the author accepts as necessitating operation; but as regards prostatectomy by either the suprapubic or perineal route we are left with the feeling that the author has failed to grasp the position of scientific and practical surgery at the present day. This is particularly so in regard to the perineal route, which is described as if Proust had never written a description of the operation.

Altogether we think the perusal of Mr Mansell Moullin's book does not repay the time required to read it.

The Students' Handbook of Surgical Operations. By SIR FREDERICK TREVES, Bart., K.C.V.O., C.B., LL.D., F.R.C.S. New Edition, revised by the Author and JONATHAN HUTCHISON, Junr., F.R.C.S., Surgeon to the London Hospital, Examiner in Surgery, Royal Army Medical Department. Pp. 486, 121 illustrations. London: Cassell & Co. Price 7s 6d.

THE new edition of this handbook has been carefully revised, and in most respects brought well up to date. The chapters dealing with the ligature of arteries and with amputations are excellent, and the additions made to the surgery of the nerves of the head and neck enhance the value of the work. The surgery of the stomach, gall-bladder, and intestinal canal, although not dealt with as fully, for example, as that of the arteries, is reliable. The descriptions of the various operations performed for the radical cure of hernia are simplified and excellent. We are unable to see the necessity for allotting six pages to lumbar colotomy, when the authors state that the inguinal colotomy has almost entirely supplemented the lumbar operation.

While the book is on the whole a useful and reliable one for the student, there are, however, omissions which markedly diminish its value. For example—the only method of excision of the wrist given is that associated with the name of Lister, an operation which we believe is not, at the present time, generally employed; the description of excision of the hip is limited to the method by an anterior incision; no mention is made of Kocher's operation for excision of the elbow; and operations on the thorax are entirely omitted.

The Sterilisation of the Hands: a Bacteriological Enquiry. By CHARLES LEEDHAM GREEN, Surgeon to Out-patients, Queen's Hospital, &c. London: Simpkin, Marshall, Hamilton, Kent & Co. Birmingham: Cornish Brothers, Ltd. 1904. Price 2s. 6d. net.

IN this little book Mr Leedham Green records the results of investigations made by him on the relative values of different methods of disinfecting the skin. They represent the work of many years, and form a valuable contribution to the literature of this important subject. He selected the methods which have been advocated in this country as well as on the Continent, and subjected each to a uniform and severe practical test. After the hands had been thoroughly scrubbed and disinfected, cultures

were taken from the skin and nails. The result of these bacteriological experiments show that the majority of antiseptics, *e.g.* carbolic, lysol, corrosive sublimate, fail to eliminate organisms from the skin, except when used for an inconveniently long period, or at a strength injurious to the condition of the skin. All solutions which produce a dermatitis are to be condemned. Hands which are rough and cracked are practically impossible to disinfect with even moderate success. The desirability of surgeons possessing a smooth and soft skin is therefore obvious.

From its property of hardening and fixing the superficial layers of the epidermis, Mr Leedham Green considers alcohol an essential factor in the sterilisation of the skin. He recommends a modification of Fürbinger's method, substituting alcoholic sublimate (1-1000) for the aqueous solution.

The experiments have been carried out with untiring energy and ingenuity, and the excellence of the bacteriological technique renders the work of great interest and value. It should achieve good practical results.

Diseases of the Heart. A Clinical Text-Book for the use of Students and Practitioners of Medicine. By EDMUND HENRY COLBECK, B.A., M.D., B.C., F.R.C.P., D.P.H. Second edition, revised and enlarged. Pp. 350. London: Henry Kimpton. 1904. Price 7s. 6d. net.

IN its second edition the general arrangement and character of the work remains essentially the same as in the first edition. The work consequently follows familiar lines, dealing with the anatomy and physiology of the heart, methods of diagnosis, the pulse, the cardiograph, congenital affections of the heart and great vessels, diseases of the pericardium, endocarditis, valvular lesions, diseases of the myocardium, angina pectoris, and functional diseases of the heart.

The more strictly clinical features of cardiac diseases are well described, in a thorough systematic manner, and the reader will find much useful information in the pages of the work. Thus the sections dealing with the estimation of the amount of regurgitation in mitral incompetence and aortic regurgitation, and similarly of the degree of narrowing in mitral and aortic stenosis, afford excellent reading. The same may be said of the pages devoted to the auscultation of the heart, and the diagnosis of the various diseases.

The omission of more or less recent work on the physiology of the heart as contained in the writings of Gaskell, Englemann, Wenckebach and Hering, to mention only a few of the

many investigators who have advanced our knowledge of the heart's action in health and disease, and the absence of simultaneous tracings of the radial and venous pulses or radial pulse and cardiac impulse, render the description of intermittence, irregularity, trigeminal pulse, bradycardia, and the pulse in mitral and myocardial diseases most disappointing.

The instrumental determination of blood pressure has received, as the author admits, but scanty consideration. He considers a more detailed description to be hardly profitable. It cannot be denied, however, that recent work goes to prove that the instruments of Oliver, Riva-Rocci and Gaertner are yielding valuable clinical information.

Nor has recent work been adequately considered in the sections dealing with the pathology of the myocardium. Reference is not made to the frequency with which acute myocarditis is found in cases of old valvular lesions, whilst fatty degeneration is still defined as a fatty transformation of the muscular substance of the heart and is ascribed to interference with nutrition, "more particularly with the process of oxidation."

The work is throughout well written and carefully arranged, and the reader will regret that so instructive a book should not have been quite in line with our present knowledge on such points as we have indicated above.

Medical Electricity. By LEWIS JONES. Fourth edition. Pp. 516. London: Lewis. 1904. Price 12s. 6d.

IN the fourth edition of his well-known work, Dr Lewis Jones adheres in the main to the method of treating the subject observed in the previous edition.

Owing to the rapid advances in electrical science in recent years, many additions and alterations have been necessary in order to give the reader information regarding modern appliances and procedures, and the volume is in consequence rendered somewhat bulkier than formerly.

More particularly as regards high frequency currents and X-ray work has Dr Lewis Jones added much, and into those subjects he enters very fully.

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THE SCOTTISH
MEDICAL AND SURGICAL
JOURNAL

A CLINICAL AND PATHOLOGICAL ANALYSIS OF A SUCCESSIVE SERIES OF 120 ABDOMINAL HYSTERECTOMIES FOR FIBROMYOMATA[1]

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THE operation of hysterectomy has now become one of such common everyday occurrence, that in itself it would be superfluous to attempt to engage the interest of the Fellows of the Society in its description. But in an aggregation of cases there is much of clinical and pathological importance, and it is specially from this aspect that I feel warranted in bringing before you a resumé of my experience.

I have performed the operation 120 times for the following symptoms:—

Clinical Indications.—

Bleeding	85
Size	15
Pressure symptoms	13
Reflex	2
Dysmenorrhœa	3
Constant pain	2

Age.—The ages of the patients were:—

Between 20 and 30	2
„ 30 „ 40	28
„ 40 „ 50	80
„ 50 „ 60	8
Over 60	2

[1] Read before the Edinburgh Obstetrical Society.

In this connection the overwhelming majority of cases between 40 and 50 is instructive. Of the 8 operated on between 50 and 60, only one had reached the climacteric, while those over 60 will be referred to later.

Hæmorrhage.—As is well known, and as the foregoing table amply corroborates, hæmorrhage is the main symptom which calls for interference. Insidious in its commencement, it so slowly reduces the individual to a state of weakness, that only in a few extreme cases does the patient appreciate how far she is removed from health, and only after years of invalidism does she readily consent to operative treatment.

Far more readily do they seek relief from the presence of a large tumour, which only offends their susceptibilities without seriously injuring health. I have, for this reason, removed 15 tumours, the majority (11), as might be expected, from spinsters. The largest, an œdematous growth, weighed 42 lbs.

Severe Pressure Symptoms.—Though frequently attaining large dimensions, these growths usually become readily accommodated, and symptoms from pressure are undoubtedly rare. This probably is accounted for by the fact that the majority of growths arise from the body of the uterus, which is freely movable, and thus permits of their ready access to the abdomen. It is mainly, therefore, when situated low in the uterus that symptoms of pelvic pressure are met with, or when, through a weak lower uterine segment, the uterus becomes retroflexed and the tumour incarcerated. The minor pressure symptom of frequency of micturition is common but is of trivial importance.

In only 5 cases of growths from the body of the uterus have pressure symptoms been the sole cause of the patient seeking advice; 3 being due to retention of urine, 1 to cramp in the legs, and 1 to pressure on the ovaries prolapsed below the tumour.

The history of the retention of urine cases was similar throughout, a temporary stoppage before and sometimes during menstruation, due to the enlargement of the uterus and tumour at this time.

As might be expected, the cervical tumours were mainly associated with symptoms of intra-pelvic pressure.

Pain.—Severe dysmenorrhœa, though frequently associated

with bleeding fibroids, as a symptom, *per se*, I have only met with twice in this series; once with a cervical tumour, and once with an incarcerated growth in the posterior wall. Constant pain and tenderness of the tumour in uncomplicated cases I have not met with, although it formed the most marked symptom in 2 of the 3 cases complicated with pregnancy.

Nervous Symptoms.—Reflex neuroses are uncommon. One case, however, is of special interest, as by the removal of a uterus, the seat of multiple fibroids, a cure was effected of a persistent laryngeal cough, so excessive as to produce violent Laryngismus Stridulus, of such an aggravated nature as to menace the life of the patient. In another instance persistent vomiting was similarly inhibited.

Unlike ovarian tumours, fibroids do not seem to influence the mental state of the individual to any marked extent; one does not, therefore, meet with the drawn, careworn expression so well known as the "Ovarian Facies."

Sterilising Effect.—Perhaps it may not be out of place to give the statistics which appertain to child-bearing. Of the 120 cases, 71 were married, 42 were absolutely sterile, and the remaining 29 had an aggregate of 78 children, which shows a general fertility of slightly over 1 child each. But still more striking is the fact that the average age of the youngest child before the patient came under treatment was 9 years, which is convincing proof, to my mind, of the sterilising effect of these growths, a question which is at present much debated.

The association of heart and kidney complications, of which so much has been made of by some writers, I have entirely failed to find. Beyond the necessary feebleness of the heart's action due to prolonged anæmia, I have met with no particular heart lesion which could be attributed to the presence of the tumour. While being impressed with the records of kidney complications, I at first carefully tested the urine in all my patients, but met with such negative results that I have completely abstained from continuing it as a routine practice.

It is, indeed, surprising when one considers the near relation of the ureters and their necessary displacement in many cases, how free patients remain from kidney affections, but, so far as I know, I cannot produce a single instance of this complication.

Beyond the mere recording of the symptoms as above, the clinical features call for no special remark, they merely corroborate what is already so well known, and may be shortly summarised as follows :—

1st. The main symptom of fibromyomata is hæmorrhage.

2nd. They markedly tend towards sterility.

3rd. Only exceptionally are they the cause of pain, severe pressure symptoms, or other complications.

Pathology.—It is from this aspect that a review of these cases is most interesting. They may be tabulated as follows :—

(1) *Of Uterine Body.*			
A. Simple fibromyomata . . .			63
(*a*) Multiple . . .	54		
(*b*) Single . . .	9		
B. Degenerated . . .			20
(*a*) Œdematous . .	12		
(*b*) Red degeneration or infarction	1		
(*c*) Cystic . . .	2		
(*d*) Calcified . . .	1		
(*e*) Sarcomatous . .	2		
(*f*) Telangiectatic . .	1		
(*g*) Diffuse nodular fibrosis .	1		
C. Complicated with other growths .			24
(*a*) Adeno-carcinoma of body .	5		
(*b*) Mucous polypi . .	9		
(*c*) Cystic ovarian tumours .	6		
(*d*) Solid ovarian . .	1		
(*e*) Broad ligament cyst .	3		
D. Complicated with pregnancy . .			3
E. Complicated with marked ascites .			1
(2) *Of Cervix*			7
(*a*) Single . . .	6		
(*b*) Multiple . . .	1		
(3) *Of Body and Cervix Combined* . .			2

As this table shows, the majority of the cases were multiple and simple. Sixty-two grew from the body of the uterus and 7 from the cervix; of the latter, 6 were solitary and one multiple. In two cases there was a universal involvement of the whole of the uterine body and cervix.

The general and histological characteristics of these growths are too well known to warrant in an article of this nature any detailed description. The amount of connective tissue to muscle fibre varies within wide limits. The hard and slow growing are mainly fibrous, while the soft, rapidly growing have a larger proportion of muscle in their composition. Special reference, however, may be made to the primitive character of the blood-vessels throughout the tumour, which are more of the nature of sinuses; they thus necessarily tend to a sluggish circulation through the growth, readily influenced by the varying external conditions, and thus predispose to secondary degenerative changes which are so common.

As the table shows, the most common change is the œdematous, which occurred in 12 cases; in 10 of these it would appear as if the condition was due to a simple interference with the lymph return, resulting in a serous infiltration of the tissue and a slow secondary degenerative change in the fibres, as evidenced by destruction of their nuclei and granular changes in the cell protoplasm. This, as is natural to expect, occurs in multiple as well as in solitary growths; while the degenerative process may be confined to isolated portions of the tumour, with intervening patches of healthy tissue.

In the early stages the cut surface of the tumour has a softened appearance, and there exudes a clear yellowish non-coagulable fluid; in the later stages degenerated areas are found in all degrees of dissolution, culminating in degeneration cysts with thick coagulable contents. Microscopically, throughout the tumour will be found blood extravasations showing congestion from slight impairment of the venous return. These advanced changes are more frequently met with in the stalked subserous varieties of tumour, and are probably due to the interference with the circulation in the pedicle. The most marked case in my experience was met with where the pedicle was partially twisted. In two solitary growths, however, the changes were so marked and the appearances so different that it is questionable if one had not to deal with a different variety of growth *de novo*.

These tumours in their general features closely simulated the growths described first by Lawson Tait as œdematous

fibroids; like Tait's cases also, they occurred in young women (26 and 28 respectively), and were solitary and interstitial in position.

To the naked eye the tumour showed on section a spongy appearance, with numerous small, well-defined cysts. Microscopically, the degenerating fibro-myomatous matrix was here and there infiltrated with numerous small cells of almost embryonic appearance. No cellular lining could be identified on the larger cysts, but occasional endothelial lined spaces could be seen. Some portions markedly simulated myxo-sarcomatous change, but it is improbable that they were really malignant, for after removal there has been no evidence of such. I have little doubt that the original tumour which gave rise to the unilocular fibrocyst was probably of the same character. This growth was met with in a young woman of 31, who suffered from constant uterine hæmorrhage and consequent severe anæmia. The contents of the cyst were amber-coloured and spontaneously coagulable.

Closely allied to the œdematous is the red degeneration, or so-called necrobiotic tumour, which on section shows a dark purplish appearance. On microscopic examination the muscular and fibrous tissue fibres are seen markedly degenerated and stained by hæmatin, similar to red infarction met with in the spleen and kidney. This is probably due to a primary slow interference with the venous return resulting in stasis. Most examples of this change have been found in fibromyomata connected with pregnancy, which is natural to expect from the increased vascularity resulting from gravidity. These tumours rapidly increase in size, and are said by Fairbairn to be associated with tenderness; but though probable from the increased tension, this symptom was not present in the case I met with, nor was it so in a very marked example of Dr Fordyce's, which he kindly allowed me to investigate.

The calcified tumour I removed from a lady of 69, on account of pressure symptoms, from pelvic impaction. The uterus which formed the pedicle was little thicker than an ordinary pencil.

I have already published an account of the sarcomatous tumours removed from patients of 59 and 71 years of age. As I then stated, the history of the cases and microscopic

characters of the growths gave convincing proof of their origin from pre-existing fibroids.

The most peculiar of all the growths I have removed is perhaps that which I have designated "Diffuse Nodular Fibrosis." In this instance, as may be seen from the specimen, the uterus was uniformly enlarged to the size of a six months' pregnancy. On section the cavity of the uterus was seen to maintain its triangular shape. The uterine walls were enormously thickened by innumerable small, white, hard unencapsulated nodules, many of which protruded into the uterine cavity in polypoidal form, but were enclosed by a definite uniform layer of uterine muscle externally, which preserved the smooth regular contour of the uterus as a whole. Microscopically the nodules were mainly composed of white fibrous tissue with a few muscle fibres. I cannot in the literature find any description of a similar case.

The patient suffered from profuse uterine hæmorrhage only.

Interstitial Cervical Fibromyomata.—I have met with 7 examples of this variety of growth, a proportion which quite coincides with the general statistics regarding these tumours, viz., 6 per cent. Two were situated in the anterior wall and 5 in the posterior; all of these but one in the anterior wall were uninodular. They are of great interest, and I may therefore be permitted to dilate somewhat more specially upon them.

The largest weighed 6¼ lbs., but all were big enough to fill the superior strait of the true pelvis, and thus give rise to pressure symptoms; they assumed at the same time the characteristic ovoid shape due to compression by the pelvic walls.

In 5 the entire wall of the cervix was uniformly involved (supravaginal, intervaginal, and intravaginal portions), and the cervical canal was thus much dilated transversely; while the opposite wall was much attenuated by being stretched over the growth. The os externum was therefore represented by a wide transverse opening which easily admitted one or two fingers.

The body of the uterus remained unaffected, and was evident as a nodule on the top of the tumour. In two instances, it was the seat of a small fibroid.

The bladder in each case was lifted up into the abdomen by the tumour itself when anterior, and by the stretching of the anterior wall in the posterior growths.

In one instance the displacement of the body was very pronounced; here it was only found after complete liberation of the growth, retroflexed in the pouch of Douglas. In this instance the operation was complicated by the absence of the usual landmarks, on account of the entire pelvic inlet being filled with the incarcerated tumour, which effectually prevented the detection of the uterus and ovaries implanted beneath it. The bladder also was found pressed against the side wall of the pelvis, and was much enlarged from long previous distension.

Supra and Intervaginal Cervical Fibroid.—This growth in the posterior wall differed from the preceding, so far as physical signs were concerned, in the absence of dilatation of the os externum, as would be expected from the want of involvement of the intravaginal portion. The symptoms were simply those of pressure without hæmorrhage. The removal of all these cervical growths is tedious and difficult. Firstly, from their deep situation in the pelvis; and secondly, from the displacement of the surrounding structures, particularly the ureters.

Their close and intimate connection with the rectum, if growing from the posterior wall, is a cause of difficulty at the operation, and danger subsequently, as there is a tendency to infection of the raw bed of the tumour by the bacillus coli, which in one of my cases caused the death of the patient.

To as far as possible mitigate this danger, I now have the rectum thoroughly washed out daily by enemata for several days after the operation.

Subserous Supravaginal Cervical Fibroid.—This tumour I removed by supravaginal hysterectomy, as after enucleation of the growth from the recto-vaginal septum I was able to secure a good cervical pedicle.

This patient suffered from severe rectal symptoms, constipation alternating with diarrhœa, also severe tenesmus and occasional attacks of retention of urine. The uterine canal, though increased in length, was not stretched transversely a in the former tumours. The intravaginal cervix was well

marked and appeared normal, while the posterior vaginal wall was bulged forward by the growth. After removal there was considerable suppuration of the bed of the tumour, due to infection of the bacillus coli through the rectum. Evacuation of the pus, however, fortunately spontaneously occurred through the patent cervical canal.

Uniform Enlargement of Body and Cervix.—Of this combined variety I have had but two cases, and so far as my experience goes, they form the most formidable type from the surgeon's aspect, from their unwieldiness due to size and pelvic incarceration.

In one the lower pole of the growth was sloughing and gangrenous, and the patient died three days after the operation from septic peritonitis.

Complicated.—The frequency of the association of fibromyomata with other pelvic and uterine new growths is interesting and instructive.

That ovarian cystic tumours are not more frequent is somewhat surprising when one considers how often cystic ovarian changes are met with in fibromyomata.

The presence of mucous adenomata in 9 cases is what might be expected from the increased vascularity of the organ; and in the same way adeno-carcinoma, with fibroids, is of importance clinically, in so far as it may account for a rapid development of serious hæmorrhage in a case previously quiescent.

Further, the comparative frequency of adeno-carcinoma makes it imperative that before performing subtotal hysterectomy for bleeding fibroids, the cavity of the removed uterus should be laid open and thoroughly inspected, when, if malignancy is found, the cervix should be excised.

In one of my cases I omitted to follow this rule, and did not recognise the condition till some weeks later. No development, however, of the malignancy has subsequently occurred, though the operation was performed over three years ago.

In one case only have I met with marked ascites, a coincidence so common with simple fibrous ovarian tumours. This is probably accounted for by the uterine tumours being extraperitoneal.

The association of pregnancy with fibroids has been the indication for hysterectomy in 3 cases, in one case at the third month, in the others at the fourth month. The reason for thus operating was in 2 cases severe continuous pain and pressure symptoms; in the third case I did so to complete the operation commenced by another surgeon, who was under the impression he was dealing with an ectopic gestation. It would be out of place in this paper to deal with the treatment of fibroids and pregnancy generally. But it seems to me that unless urgent symptoms manifest themselves pregnancy should, in the majority of cases, be allowed to continue, but if interference becomes necessary, hysterectomy is preferable to the induction of abortion.

In the latter, not only have we the immediate dangers due to hæmorrhage and imperfect expulsion, but the remote complications due to degenerative changes in the growths, and the possible recurrence of the pregnancy.

The Operation.—The method of operation I prefer is the subtotal or supra-vaginal method, and I consequently perform it in all cases where there is no special indication for the "pan" operation—such as cervical involvement or associated malignancy. I have thus adopted the subtotal operation in 105 cases, as against 15 pan-hysterectomies.

I have been led to this decision almost entirely on account of the fact that it is simpler to perform, which of necessity implies that it is quicker and thus safer; as from considerable experience in abdominal surgery I am more and more convinced that rapidity of operation (in conjunction, I need hardly say, with thoroughness) is of great value, and if the same end can be obtained I infinitely prefer the shorter method.

It has been claimed by the supporters of the pan operation that the possible chance of a subsequent malignant cervix is removed. This must be admitted, but as I have already shown in a previous paper read to this Society, the chances of such a contingency are so infinitesimal that they are almost unworthy of consideration. It has also been stated that there is a greater liability to secondary intestinal obstruction from adhesion to the peritoneal cicatrix in the subtotal method. My experience on this point is, I am glad to say, nil, but at the same time I cannot imagine that a peritoneal cicatrix can have any more

tendency to attract and fix intestines because it happens to have a stump of cervix behind it.

It would be superfluous to describe the general steps of the operation to a meeting of this Society. However, a few important details acquired by experience might be mentioned. After trying all modes of securing the vessels, I have come to the conclusion that the most rapid and effective way is to clamp with forceps, and after removal of the tumour, tie them. By this means they are more securely ligatured and no time is wasted by reinforcing sutures.

The cervical stump I leave as it is cut; the formation of flaps I consider not only superfluous but harmful, as I believe that the patent cervical canal may form a ready drain should any suppuration occur in the subperitoneal tissues from which the tumour may have been enucleated, as shown in one of my cases already described.

The layers of the broad ligament I appose by means of a continuous silk suture; and I am careful to invert the edges as in Lembert fashion.

This may account perhaps for the absence of intestinal obstruction from adhesion to the cicatrix.

I have closely followed the popular lines as regards details in technique, with two exceptions—viz., the use of sponges, and suturing the abdominal wound. I prefer sponges to swabs for many reasons. They are softer and kindlier to the peritoneum. They have more resistance in shutting off the bowels in the abdominal cavity, and they are much more absorbent. By this means the peritoneal toilet can be more quickly performed and with less irritation to the delicate peritoneum. And lastly, they are more readily counted.

That they are more likely to be the source of sepsis I emphatically deny. Out of many hundred laparotomies in which I have used them, I cannot recall one instance in which sponges have infected the patient. By suitable methods they can be rendered as sterile as any swab.

The following is the method I employ:—

New sponges are laid between towels and beaten to thoroughly break up cretaceous matter. They are then soaked for 24 hours in a solution of carbonate of soda—½ lb. to the quart—after which they are rinsed until no sand is

deposited. They are then kept permanently in jars in a solution of 1-60 carbolic until required. *Before operation* they are put in a solution of carbolic 1-20 over night, and immediately before use they are squeezed from this and placed into hot sterile water. *During the operation* the following rules are attended to:—

After being soiled they are thoroughly rinsed in cold and tepid sterile water consecutively, and lastly are returned to the hot sterile water ready for use. After the operation they are thoroughly rinsed, then soaked in the soda solution for 24 hours. Again rinsed thoroughly and returned to the carbolic solution 1-20.

One set of sponges may, if care be taken, suffice for at least 30 operations. They should be squeezed, not wrung, as by this means they are prevented from being torn and ragged and any chance of leaving small torn pieces in the abdomen is thus avoided.

In stitching the abdominal wound I use the through and through method, using silkworm gut as the suture material. So far as I know, the cicatrix has proved as firm as that by the other more elaborate methods. Other things being equal, therefore, I again prefer the simpler and more rapid.

The prevention of herniæ, I believe, is mainly to be acquired by the patient steadily wearing a well-fitting abdominal belt for at least a year after the operation. By following this rule, experience leads me to believe that the through and through suture does all that can be desired.

The removal of the ovaries along with the uterus must depend on their situation and freedom from disease. In many cases it would materially complicate the operation to save them, and very frequently they appear so pathologically changed that one hesitates to leave them. The age of the patient must also have some guiding influence. When over 40 years of age their removal does not seem to incur such distressing climacteric symptoms, as they do not require so much consideration. In one of my cases in which they were left, the patient died of sarcoma of the ovary four months after the operation.

The post-operative treatment I follow is of the simplest. The patient is allowed and encouraged to lie in whatever

position she may feel most comfortable. The continued dorsal position to many is so intolerable that its enforcement is needlessly harsh, as no good purpose can be served by doing so. After chloroform-sickness stops, tea, soups and other liquid nourishment can be freely partaken of. The bowels are moved on the morning of the third day, after which ordinary plain diet is allowed, according to fancy. The starvation of the patient from all food and drink for the first 48 hours, and the subsequent existence for weeks on slops, like the enforced maintenance of the dorsal position, may happily now be looked upon as a relic of the past—the nature of barbarism. The first movement of the bowels after the operation should be gentle. Calomel, the favourite aperient in these cases, I find is often too severe, and should not be given to elderly or weakly women.

For the first 48 hours the urine is drawn off, after which it should be passed voluntarily, if possible. Sometimes, however, there is great difficulty in emptying the bladder for many days, as might be expected from the liberties which have been taken with its attachment to the uterus.

To enter into the details of the management of minor complications, though important, would be wearisome and does not come under the scope of this article. I may say, however, that careful and intelligent nursing has done as much towards the success of the operation as the improved technique of the operator. Asepsis and improved methods have done much to make hysterectomy a safe operation, but the knowledge of details in the after-treatment forms the finishing touch which has reduced the mortality to the vanishing point.

I have unfortunately to record 3 fatal terminations :—One after the supra-vaginal method had been employed, and 2 after the pan operation. The former occurred in a patient reduced to the extremes of bloodlessness, who never rallied from the effects of the operation. The latter, I regret to say, were due to septic infection. This, in one instance, was the result of infection of the bed of the tumour by the bacillus coli, through the bared rectum, from which the large posterior cervical fibroid was separated. The other case I have incidentally already mentioned as due to peritoneal infection from a sloughing growth, involving both cervix and body.

To attempt to draw any conclusions as to the relative risks of the two methods from my experience would be absurd, as save for two cases in which I did the pan operation mainly to acquaint myself with its technique, all were complicated and difficult.

Indications for Hysterectomy.—Before concluding, it might perhaps be well to dwell shortly on the lines which have guided, and the conditions which have influenced me in performing the above series of operations; or, in other words, discuss the indications for hysterectomy.

In considering this important question, three factors have stood prominent.

Firstly, the operation :—

Is it sufficiently safe to warrant its adoption except from the direst necessity?

Are there any alternative methods of treatment of equal value?

Are the remote results satisfactory?

Secondly, as regards the effects of fibromyomata :—

Are they sufficiently detrimental to the well-being of the individual to warrant such radical treatment?

The risk to life from the operation in competent hands has, in the last decade, been reduced to such small proportions as to give rise to little anxiety. Doubtless I have in my 120 cases to record 3 deaths, but in each and all the condition of the patients was so perilous, that anything short of hysterectomy could not have spared these lives beyond a few months; and in one case, had the operation not been delayed so long, the result would probably have been otherwise.

The alternative methods of treatment are so uncertain that it is questionable if, in the face of the certainty from hysterectomy, they are worthy of adoption.

Removal of the ovaries has practically the same risk as the major operations, which, with its uncertainty, makes it, except in very exceptional circumstances, unworthy of consideration.

Electric Treatment, though doubtless of value in many instances, is also uncertain, and, at the same time, irksome. It has undoubtedly had its day, when hysterectomy was

fraught with a large mortality, and can be looked back on with respect, but under existing conditions it may be said it has been entirely superseded.

Medicinal Treatment is seldom curative, and only occasionally even temporarily beneficial.

The results of hysterectomy are perhaps the most happy of gynæcological surgery. With judicious conservation of the ovaries the after effects of the operation are all that can be desired; and if symptoms are present which justify curative treatment, in the majority of cases it stands pre-eminently first as the method of selection. In some cases of pedunculated tumours and solitary tumours myomectomy is perhaps preferable as a conservative operation, but these are few and far between, and cannot be reckoned as an alternative method of treatment in most instances. In this connection, however, it is well to impress the fact that in cases of severe bleeding from small tumours, the cavity of the uterus should always be explored by the finger prior to laparotomy being performed, so as to exclude the chance of a stalked submucous growth being the sole cause of the symptom.

Much has been written and more has been said regarding the miserable condition of the so-called "victims" of hysterectomy. They are described as not only losing their sexual functions, but actually developing masculine attributes, such as a moustache or a deep, sonorous voice. Still further, it is said that their mental equilibrium is apt to be rendered unstable, but this, I trust, we surely cannot consider a further simulation of the male. Fortunately, my experience leads me to give such assertions a flat denial. It is probable that after this operation some women have accidentally become insane, and the mole-hill has thus become developed into a mountain. Yet there can be little doubt this canard has seriously prejudiced the popular mind, and ought to be strenuously controverted.

In this connection I have made strict inquiry from a number of medical superintendents of private and other asylums. So far, I have succeeded in unearthing one solitary inmate who, in their experience, had no uterus. In comparison with the so-called "mutilation," there are scores without breasts and appendices, and so far as I know from the psychical aspect, there has been no cavil at their removal. Surely the subject

bears looking into by the anti-operator. From the other aspect, the fact that numbers of asylum inmates suffer from fibroids might with more weight be urged as another indication for their removal.

Experience teaches me that, almost without exception, the return to health, both bodily and mental, after operation, is perhaps the most encouraging indication for its adoption. The happiness of the individual upon restoration to health, after so many years of comparatively unknown fitness, is indeed striking.

From a clinical aspect, hysterectomy is only to be considered when fibromyomata give rise to well marked symptoms, and when the age of the patient is such that there can be no reasonable expectations of a cure from natural causes within a reasonable time.

To operate simply on account of the presence of a fibromyomatous growth is absolutely reprehensible. But, on the other hand, to condemn a woman to years of invalidism, waiting on the menopause, is infinitely more so, as by this means the best years of her life are wasted on the only probable chance of a comfortable old age.

In this connection it is well to remember that from the insidious and slow manner by which the patient is reduced to a state of inutility, she is unaware of her inefficiency and weakness, and is but too ready to exist instead of live, and this at the expense of the friends immediately associated with her. She knows not what it is to live in health and happiness, but drags through an undesirable existence in the fond hope that when she is old she will be stronger. To aid and abet in such an existence is unworthy of our profession, when a ready and safe means for its avoidance is at our disposal. On this account I urge women, when invalided by hæmorrhage and weakness, to consent to the small risk which the operation entails, that they may become able to worthily fill their places in their respective spheres.

It is the absence of pain which predisposes more than anything to the postponement of the operation from the patient's standpoint, as proved by the readiness with which they agree, nay, even personally urge similarly severe operative procedures, when the appendages are diseased.

Yet, I am prepared to say, they are no more social and physical wrecks in the latter case than in the former.

In spite of the fact that there is so little danger to life, it is pitiable to think that many women of early middle life are encouraged to exist in a state of semi-invalidism—the result of bleeding—simply in the hope that probably when their best years are past they may be relieved of their suffering, and this simply to avoid undergoing the risk of an operation with such a small mortality. In this there is little doubt sentiment plays a considerable part. The mythical idea of being unsexed by the operation is strong but erroneous. In the working class and the poor, necessity demands otherwise, but among the more affluent classes it is different. Fashionable Spas are flooded with them, and the bath-chair "Chauffeur" reaps a large harvest.

Now that surgical methods are so perfected as to reduce the risk of radical operation to the vanishing point, I feel one is warranted in taking a strong position against long continued temporising treatment; and, if a woman's health and happiness are impaired by reason of a uterine fibromyoma, in urging strongly its removal. To suggest resting so many hours daily, and lying in bed during each menstrual period for a space of many years—a method of treatment (if such it can be named) I have too commonly seen—is to my mind puerile at the best.

To sum up, I believe that hysterectomy is indicated in the majority of interstitial and subperitoneal fibroids which give rise to symptoms, and reduce a woman's health, comfort and usefulness when under forty-five years of age.

In all cases where urgent symptoms are present at any age, when myomectomy cannot readily be performed.

In cases where no symptoms are present no treatment is necessary, and it is unwise to acquaint the patient with the fact that the condition exists.

I may have stated my ideas strongly, but I feel convinced if they were more frequently followed, there would be many a cleaner hearth and happier home.

HEREDITY IN OVARIAN CYSTOMA

History of a Mother and her Two Daughters subjected to Ovariotomy

By PROFESSOR A. R. SIMPSON

DR LEVER, recording observations made in the Midwifery department of Guy's Hospital in *Guy's Hospital Reports* for 1855 (Third Series, i. 79), has a paragraph entitled "An account of seven deaths in one family from Ovarian Disease, showing the Hereditary Nature of the Malady." The disappointingly brief account reads as follows:—

"There is much diversity of opinion amongst writers whether ovarian disease is hereditary or not. I have not the slightest difficulty in giving my opinion, and emphatically state it is. As certain as I am that malignant disease of the uterus is transferred from generation to generation, so from experience I am convinced that ovarian disease is transmissible. It is true that ovarian mischief more often attacks the unmarried and the sterile, but it is also true that women who have borne children, and have ceased to conceive, may become the victims of this disease. With respect to the exciting causes, I must leave that question to a future communication.

"The following persons were all of one family and allied by blood, and they were all the subjects of ovarian disease:—

M. F., died at the age of 79 years.
M. A., „ 77 „
M. S., „ 48 „
E. S., „ 28 „ inspected by Mr Callaway.
M. D., died at the age of 49 years.
E. D., „ 20 years, operated on unsuccessfully by Mr Key.
M. S., an out-patient at Guy's, and who ere long will die."

In what relation, or with what degree of consanguinity the seven individuals stood to each other is not stated.

Sir J. Y. Simpson, in his "Clinical Lectures on the

Diseases of Women" (p. 409), says: "In some few and rare cases ovarian dropsy seems to be hereditary, being developed in one or two females in successive generations of a family. I have known the disease affect three sisters in a family."

Dr Rose writes to *The Lancet* of December 22, 1866, ii. 696, that there had been in Kidderminster Infirmary two sisters, both suffering from ovarian dropsy, who stated that their mother's sister had the same disease.

Olshausen, with characteristic thoroughness, refers to these cases in his "Krankheiten der Ovarian," 1879, p. 76. Discussing the allegation of Köberle, that where there is a hereditary disposition the disease is bi-lateral, he states that in two pairs of sisters that had come under his own observation the disease had in all been unilateral.

Von Winckel ("Lehrbuch der Frauenkrankheiten," 1886, p. 644) speaks of these instances of ovarian cystomata occurring in sisters, and says he has seen such cases.

In Veit's "Handbuch der Gynaekologie," 1898, iii. 412, Pfannenstiel says: "We still know but little as regards hereditary predisposition to ovarian tumours. The number of cases of ovarian tumours in sisters or other blood relations is indeed strikingly small in comparison to the frequency of ovarian neoplasms in general. Still, a hereditary disposition, such as is generally recognised in regard to cancers, is also here not improbable, if one keeps in view disposition in general, and not merely the disposition to development of special tumours in special organs."

The late Professor Löhlein gave an interesting history (*Monatsschrift für Geburtshilfe und Gynækologie*, iii. 91, 1896) of three sisters who had all been subjected to ovariotomy for proliferating cystomata of both ovaries. He removed both ovaries in the case of one of the sisters. Köberle performed the same operation on another. In the third sister, Köberle removed a cystic ovary and noted that the other ovary was healthy. Fifteen and a half years later she came under Löhlein's care, when he performed for her a second ovariotomy, her remaining ovary having now degenerated into a cystoma. He could not ascertain that there was any further history in the family of development of the disease, but considered that some hereditary influence might be at work.

Pozzi, in his "Traité de Gynécologie," 1897, p. 818, says "Curious cases have been noted of cysts in the same family among sisters," without recording any instances.

Martin ("Krankheiten der Eierstöcke," p. 118, 1899), referring to Löhlein's article, says: "Undeniably too little attention has hitherto been given to this kind of hereditary burden, so that we must confine ourselves to collecting separate observations. I can myself refer to two examples of ovarian neoplasms in sister-pairs; in both instances we had to do with glandular cystomata."

Except for the supposed ovarian cystoma in the aunt of Dr Rose's pair of sisters and the indefinite possibility of varying ranges of generation among Dr Lever's group of seven relatives who died of the disease, all the illustrations of heredity in ovarian neoplasms have been drawn from their development in sisters—usually two, more rarely three, as in Sir James Simpson's and Löhlein's cases, having developed the mischief.

The three patients whom I show to the Society on this occasion have the relationship of mother and two daughters. I give you their histories, taken from the ward record by Dr Barnetson, resident physician, in the order in which they came under observation.

1. Mrs S., married, æt. 25, ii-para, admitted 18th November 1899.

Complaint.—Swelling coming down front passage since January 1899.

History.—In January 1899, when three months pregnant, was blown over and fell on her right hip, and for two weeks suffered from an intermittent pain in right groin. In May, noticed something coming down the vagina which proved to be a rectocele. On 1st August, child was delivered with forceps, a face case. Rectocele did not interfere with birth. No swelling was observed when a vaginal examination was made after labour. On 23rd September was seized with a sudden sharp throbbing pain on right side of abdomen, spreading across to left side—this confined her to bed for four weeks—pain grew less. Three days after severe pain began, had a slight red discharge from front passage lasting two days. In November

she ceased nursing, and menstruation returned and lasted five days, attended with some degree of pain.

Pregnancies.—Two, eldest child two years of age, youngest four months old. Both labours were instrumental. The patient nursed the eldest for thirteen months and the youngest for two months.

Physical Examination.—The lower part of the abdomen is distended by a swelling, rising out of the pelvis as a rounded mass, regular in outline, firm in consistence, slightly movable and somewhat sensitive. It reaches to within two inches of the umbilicus. There is percussion dulness over this area and no bruit is heard.

Per Vaginam.—Posterior wall protrudes on straining. The body of the uterus lies posteriorly, and in front of it is a large elastic swelling continuous with the abdominal tumour and extending to both sides of the pelvis. *Sound* passes in 2¾ inches with concavity backwards.

Operation, 22nd November 1899.—On opening abdomen a brownish-coloured spherical tumour was found on right side of abdomen. After some adhesions of bowel were separated off, the pedicle was seen to be twisted four or five times. Pedicle crushed with Doyen's angiotribe, ligatured with a thin silk thread, and the tumour cut away. The tumour was multilocular with thick congested walls and contained quantities of extravasated blood, some of which was organised. The Fallopian tube was greatly distended. As the left ovary was found to be undergoing cystic degeneration and enlarged till it measured three inches by two, it was removed.

2. M. M., single, æt. 19, nullipara, admitted 29th November 1902.

Complaint.—Swelling of abdomen for four months. Pain on right side, six weeks.

History.—About four months ago she noticed a swelling on the right side, soft in character, and about size of a fist. Since this time the swelling has gradually increased and extended to the left side. About six weeks ago she experienced for the first time a dull aching pain which lasts for a few hours, then leaves her. She has always enjoyed good health. Her periods are perfectly regular and of usual amount, and do not cause her pain.

Physical Examination.—The swelling extends in rounded form above the umbilicus and tails off into the flanks. There is a distinct thrill on tapping. It feels elastic and is not tender. It extends to the tip of the ensiform cartilage and to the costal margins laterally. Its upper margin is distinct. There is dulness all over on percussion. No bruit heard on auscultation. In anterior and right lateral fornix was a soft bulging which with the bi-manual gave a thrill. In the left fornix a resistant body is felt which probably is the body of the uterus. Bi-manually the fundus could not be felt.

Operation, 6th December 1902.—Abdomon opened, cyst punctured and an albuminous-looking fluid escaped. There were no adhesions. The broad pedicle was ligatured and the tumour removed. It was formed mainly by one cyst, with some smaller cysts and a healthy portion of the ovary close to the pedicle. As the left ovary was enlarged and cystic it was at once removed.

3. Mrs M., married, æt. 60, x-para, admitted 3rd January 1905.

Complaint.—Great heaviness along lower part of abdomen.

History.—For the last ten years patient has noticed abdomen gradually swelling. For the past five years has not worn stays, as they caused her difficulty in breathing. About one year ago she experienced a bearing down in the lower part of abdomen, more marked on the right side. She also felt her legs weak. She was able to continue her household duties until October 1904, when she laid up for a few days' rest. She continued well after getting up until the end of November, when she was attacked with severe pain, most acute on the right side and extending across the abdomen. The pain continued severe for two days and then gradually went away. The pain was accompanied by vomiting. Ten days ago the patient became "faintish" and had an escape of dark-coloured blood from the vagina. Except for scarlet fever, the patient has had excellent health.

Family History.—Mother died at 74; father died at 64. Has five sisters who present no history of any gynecological condition, and ten children—five boys and five girls. Of the daughters, the eldest is married, is in good health, and has five

children—two boys, three girls. The second is Mrs S., who was the first of our three ovariotomised patients. The third died in childhood. The fourth is our second case of double ovariotomy. The fifth is a healthy unmarried girl of sixteen.

Sexual History. — Menstruation ceased 15 years ago. Never had menorrhagia, metrorrhagia or dysmenorrhœa. She nursed all her children, and has generally been in the enjoyment of good health.

Physical Examination. — Abdomen is very corpulent, slightly bulging on the right side. The abdomen is very tense on palpation, the muscles being held very tightly. A large tumour, somewhat tense, round in outline and perfectly smooth, and with a distinct fluid thrill, can be felt rising out of the pelvis and occupying the right iliac and lumbar region and part of the hypochondrium, and extending into the umbilical and hypogastric regions. Percussion showed this area to be dull all over. No bruit was heard.

Per Vaginam.—The patient has a prolapse of the upper half of the posterior wall, which comes down on coughing. The uterus is felt in anterior fornix. Nothing is felt in other fornices. The abdominal tumour is thought to be ovarian with a long pedicle.

Operation, 17th February 1905.—Tumour punctured. A few omental adhesions were separated. Pedicle, fairly long, clamped by angiotribe and ligatured. The tumour was polycystic ovarian, with one very large cyst and several smaller ones. The fluid which escaped on puncture was at first clear yellow, then had a greenish tinge. The sediment was decidedly green. The fluid was albuminous. The other ovary was pulled up, and as it presented the usual appearance of a healthy senile ovary, it was not further interfered with.

When the younger of the sisters was admitted to the Infirmary it was recorded in her schedule that her sister had previously been subjected to ovariotomy. It would hardly have been worth while to record their histories as further illustration of heredity in ovarian disease, although I note they are on the side of Köberle as against Olshausen in that in both of the sisters the degeneration was bilateral. The history of the elder sister illustrates, further, how such tumours may co-exist with pregnancy and not awaken suspicion till

pedicle-torsion is produced, as it often is, some time after labour. They both confirm the importance of examining the second ovary in all cases of removal of a cystically degenerated gland, for if in either of these two women only the large right-sided tumour had been removed, then there was the likelihood that the fate of the third of the Köberle-Löhlein sisters would have happened to them—they would almost certainly, after a lapse of years, have come a second time under the ovariotomist's knife.

But whilst the occurrence of ovarian cystoma at an early age in the two sisters might have been noteworthy in relation to the question of the influence of heredity in this disease, their history acquires quite an exceptional value when there is added to it the history of the development of the same disease at an advanced age in their mother. I have not lit upon any other such clear record of its appearance in a mother and her daughters.

There are two considerations which help us to understand the rarity of observations as to heredity in ovarian disease, as compared with the illustrations met with of heredity in cancer.

First, in the transmission of cancer there is the possibility of its descent along two lines, the male and the female. This might suggest the possibility of attenuation of the taint, but assuredly it gives not only more chance of transmission, it also gives the possibility of intensification of the unhappy tendency. Thus I have known of a woman upwards of thirty, marrying a husband more than ten years her senior. They had only one son, and the mother having died of cancer of the mamma about the age of sixty, and the father some years later having died of visceral cancer, the son died whilst still young of malignant disease of the testicle and liver. In regard to ovarian cystoma, on the other hand, the possibility of descent can attach only to the maternal predispositions, so that the chances of hereditary transmission are greatly lessened, and there is no possibility of intensification from the other side of the mischievous tendency.

Secondly, it is the germinal glands themselves that are the seat of the disease. Their degeneration involves lessened power of reproduction, so that married women who suffer from ovarian cystoma are barren in the proportion of one in three

or four instead of one in eight or nine, as in the general community. The very development of the disease thus lessens the chances of its descent to another generation, and whilst there is the bare possibility that some other of Mrs M.'s descendants may yet become the subject of an ovarian tumour, so far as concerns those whose history I have recorded, M. M. has no germ left to which she can transmit her malady, and the only other individuals who could possibly share some day in the *damnosa hereditas* would be Mrs S.'s little six and eight year old girls.

ON THE PREVENTION OF SEPSIS IN MIDWIFERY[1]

With Discussion

By PROFESSOR STEPHENSON

THE subject chosen for discussion to-night differs widely from the ordinary problems in midwifery. These generally pertain to special conditions, met with in isolated and at times in rare cases, due to internal influences, in the occurrence of which medical men have no responsibility. On the other hand, sepsis is derived from without, and may be introduced unawares, or stealthily enter the body of any pregnant woman ; it manifests its evil effects after an easy as well as a difficult labour. The responsibility of the medical attendant to protect his patient is accordingly great. Fortunately, the present-day knowledge is such as renders the principles of action simple as to nature, but difficult of fulfilment : the difficulty arising from the simplicity of the means and the vigilance necessary throughout.

Great is the importance of the subject, and many are the aspects in which it may be viewed. Its history is interesting and instructive. The numerous scientific researches—contradictory in their results as they not unfrequently are—invite discussion ; but if this interchange of opinions and experience is to have the practical and stimulating effect the Council had in view when they selected the subject, we must carefully avoid straying into these attractive by-paths, and keep

[1] Read before the Aberdeen Medico-Chirurgical Society, March 2nd, 1905.

within the limit assigned to us: "The *Prevention* of Sepsis in Midwifery." In opening the discussion, I deem that we are met as obstetric practitioners, not as purely scientific investigators; at the same time, as men who have interestedly followed the scientific advance of the last quarter of a century, and are familiar with the great triumphs of asepsis and antisepsis in surgery and midwifery. The question for us is in what way can we obtain the same results in private practice that are now the just boast of hospitals.

The conditions under which the busy practitioner works are very different from those by which the hospital staffs have attained so excellent results. That is no excuse, however, for anyone neglecting the means as far as he personally is concerned. His difficulties are greater, but so also will be the honour when they are overcome; and, taking individual practices, I know of not a few where the success, even amongst the poor, will compare equally with that of the best maternities.

Nevertheless, we are confronted with the fact that the Registrar-General's Returns seem to show no corresponding decrease in the yearly proportion of deaths from puerperal fever. It has been affirmed that during the last forty years the number has increased, and it has even been asserted that "the results of private practice are becoming worse and worse, in spite of all that has been done for our science and art." Now, it may or it may not be true that puerperal fever has increased in recent years. I cannot say, but I do know that the assumed increase in number of deaths corresponds in time with the introduction of greater accuracy in the system of registration.

Doubt is also thrown on those untrustworthy conclusions by the diminution, one might almost say disappearance, of the so-called epidemics of puerperal fever which, in former years, were so frequent and widespread throughout the country. Sporadic outbreaks do still occur, but the cause is known and is more surely dealt with, so that they never assume the seeming epidemic character as of old. Has this change, then, had no effect in diminishing numbers?

Whilst fully admitting the part played by the direct introduction of sepsis, it should be remembered that the success of hospitals is not solely due to chemical antiseptics—sunlight and ventilation are equally essential.

In private practice, on the occurrence of a septic case, medical men are often blamed, they blame themselves, at times unjustly, and the poor nurse comes in for her share. Is it the case, as some affirm, that drain gas cannot carry the septic germs, and that in midwifery, sepsis can enter the body of a pregnant woman only *per vaginam*?

The belief in the autogenetic origin of sepsis has been abandoned—all pathogenic germs enter from without—but it is carrying the point too far to assert that the micro-organism is always introduced *during the confinement.* These are points that might be discussed and evidence produced regarding them.

All this, though important in a medical point of view, does not diminish the responsibility of medical men, however busy they may be, to use, in all cases, every precaution to fulfil all the requirements of asepticism in obstetric practice.

The risk of introducing septic material during attendance on a patient is surely well borne in upon the mind of every practitioner. I cannot believe that remissness in aseptic precautions on the part of some is due to indifference or heedlessness as to the great responsibility that lies on each one. That there is remissness is evident, but it arises in great part from inadequate or erroneous conceptions as to what is necessary.

The younger generation of practitioners who have been reared up to "*think* (and act) *aseptically*" can hardly realise the slow and difficult process an older practitioner has had to undergo in throwing off old habits and realising all that aseptic midwifery means. I speak from personal experience. The practitioner does not always find in medical journals and text-books the help he needs. The good resolutions of some are chilled by the over-elaboration of detail and too evident impossibility of carrying out all they are told to do. With others, zeal outruns discretion, as in too frequent douching with antiseptics—doing more harm than good—whilst they remain ignorant of the simple principles of asepsis.

Asepticism belongs to the ethics of midwifery in the sense of pertaining to duty and conduct. The system has been gradually evolved, and year by year has been modified and simplified. There is an *aseptic habit* that is acquired only by

patient, persevering watchfulness, and is not confined to employing antiseptics, or even the free use of soap and water. These are but means to an end. They are essential parts, but not the whole. Many a man when he enters on his duties at the bedside is strenuous in using these means to render his hands obstetrically clean, and is surprised when he meets a case of sepsis. "I am so careful to disinfect my hands," he says. His hands may have been obstetrically clean, but thereafter he has likely neglected the equally important duty of *keeping them clean.* He dries his hands on a towel which may be anything but sterile, he may handle various objects, draw in a chair for himself, adjust the bedclothes with his hands, and then proceed to examine in a case where the vulva has been left innocent of antiseptics. With the hands, so also with all instruments. These for the most part can be reliably sterilised by boiling, but in their after-handling must be carefully guarded against soiling. The part of the septic habit most difficult to acquire is not the making clean at the beginning, but in keeping aseptically clean throughout the attendance.

For the hands. The first and all important step is the thorough *scrub* with plenty of soap and hot water, and the free use of a stiff nail-brush to the palmar and dorsal surfaces of the hands and forearms, attention being paid to between the fingers and to the ulnar margin of the palm, and special attention given to all round and under the nails. As the aseptic sense is cultivated, the hands never feel clean without this final touch. This should be followed by a swill in fresh water, and then the soaking in antiseptic solution. The sublimate hardens and roughens the surface unpleasantly, and this interferes with cleansing on subsequent occasions; the biniodide is preferable. Spirits of turpentine fulfils the purpose well; numerous other well known preparations might be mentioned.

A few eminent gynæcologists do not use disinfectants and yet show excellent results. It is true also that from the strength of the preparations employed, and the time devoted to their use, little germicide effect can take place; yet it is not well to discard this precautionary measure—it has an antiseptic, if not disinfecting action. After the cleansing comes

the equally important and difficult duty, that of keeping the hands aseptically clean. Too little emphasis has been put on this point. The hands must frequently come in contact with various unsterilised objects, and though sensibly clean they may have become pathogenically soiled. Frequent ablutions, therefore, are necessary, and always before making an examination.

Regarding lubricants, Boxall, in his well-known paper, makes a remark with which I thoroughly concur: "To my mind," he says, "it is a matter of little importance whether the lubricant be antiseptic as well as aseptic, provided whatever it may be used to lubricate be previously rendered aseptic." This brings us to where greatest risk lies of soiling the finger and introducing germs, the passage of the finger through the vulvar orifice. Here germs are prone to lurk. They may not be carried inwards by the fingers, but if there, will certainly luxuriate in the unavoidable tears around the orifice. The external parts of the patient require the same attention on the part of the nurse, as the hands of the practitioner do from himself,—barring the nail-brush. Ablution should be repeated frequently in the course of the labour, especially when the perineum requires attention. Fæces are not the only cause of soiling, the rectal mucus secretion is all the more dangerous because of its innocent appearance. Careful and frequent swabbing of the stretching tissues is necessary. Much of this duty is within the province of the nurse, but the medical man must assure himself that all has been thoroughly done, and done repeatedly. Other things she attends to, discarding sponges and bits of flannel, substituting cotton wool or sterilised tow as swabs, each of which are to be used once only and then burned. Stress has been laid on the importance of using antiseptics for all external purposes. Different, however, is the question regarding their utility and advisability for internal use. Considering the strength of the solutions employed and the short periods they remain in contact with the tissues, it is doubtful if they produce any germicidal effect. They are liable to have deleterious action on the maternal tissues, lowering their resistance and physiological destructive power over bacteria. This has been proved to be the case with the routine vaginal douche before and after labour.

Further, the introduction of the nozzle by a careless nurse is not without its risk. Unless specially indicated by the character of the discharge or urgent symptoms, douching should be discarded. Even when indicated, I am inclined to believe very hot salt solution used in large quantities and for longer time than ordinary, will be equally effective and much safer; the flushing, and not the disinfectant, being the real agent. It is on it the gynæcologist relies to cleanse the peritoneum when suspicious matter has escaped into the cavity.

I have presented the subject from the practitioner's point of view. I have pointed out what asepsis means—not cleansing only, but keeping clean. Scientific asepsis is an impossibility; we cannot kill all the germs or spores. It is, however, possible to attain to obstetric cleanliness if not asepsis. The means are simple, but they must be thoroughly and persistently carried out. To do this one must acquire the aseptic habit.

Dr M'Kerron remarked that the annual mortality from puerperal fever had shown little or no diminution, and also pointed out that there had been no improvement in midwifery similar to that in surgery since the introduction of antiseptics. But the comparison between midwifery and surgery was not quite fair. The surgeon operated generally at his own time and in a prepared environment. A surgical operation also occupied a stated time, while a confinement might go on almost indefinitely. It was not merely puerperal fever that one has to avoid, but the inflammatory conditions involving ill-health. In the management of labour, attention to the general health during pregnancy is necessary, as the vaginal secretion is nature's safeguard. It is important also to have a nurse who understands the principles of asepsis. The nurse ought to disinfect her hands, give a rectal injection, again disinfect her hands, and wash and disinfect the parts of the patient. The physician should disinfect his hands and keep them clean, as we had been told. There should be few examinations made. Abdominal palpation is a great help in making out the position of the child. Also see that the uterus is quite empty of clots before putting on the binder.

Dr J. Gordon emphasised the necessity for absolute cleanliness of hands and parts and also the advantage of making few examinations.

Dr T. Milne pointed out that thirty years ago, when no precautions against sepsis were taken, little septic mischief was met with. He thought that the natural antiseptic power must be great.

Dr Howie stated that douching with perchloride might cause rise of temperature, diarrhœa and albuminuria, and it was necessary to remember this.

Dr Rose mentioned the difficulty of keeping the hands aseptic, and the fact that there was little puerperal fever in spite of that fact. Cleanliness is of the utmost importance.

Drs Adam, Rorie, Innes, Riddell, Bruce, Henderson and *Rennet* took part in the discussion.

Dr Stephenson, in reply, said that after confinement he would only use a douche when absolutely necessary, and in judging of the necessity would place pain and high temperature with abnormally quick pulse before fœtor of discharge. Douches ought not to be continued if there was no benefit after a few. Flushing with saline was better than an antiseptic douche.

Clinical Records

CASES OF INTESTINAL OBSTRUCTION

By J. SCOTT RIDDELL, C.M.,

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THE following cases of intestinal obstruction, which have occurred recently in my practice, may present some features of interest to operating surgeons, but are more worthy of a place among clinical records, in so far as they illustrate the advantage of early diagnosis followed by immediate operation. The lamentable results which not so many years ago followed operations for intestinal obstruction have left their mark in the tendency towards expectant treatment which still lingers. A fatal issue was then to be looked for, as the patients too often came into the surgeon's hands only when the "danger limit" had been far passed. The admirable results now obtained in exactly similar cases may in part be due to the greater skill and improved technique of the surgeon, but depend still more on the diagnostic acumen and decision of the general practitioner, who has been taught by experience and a study of recorded cases that waiting brings discredit and disaster, while early operation promises success. These cases have, with one exception, occurred within the last twelve months. During the same period another patient, suffering from strangulation by bands, was operated on by me on the fourth day of his illness, but died

three days later from intestinal paresis and auto-intoxication. Notes of this case are not forthcoming.

CASE I. *Strangulation by band. Cœliotomy. Recovery.*—W. F., aged 29, was sent by Dr M'Hardy, Banchory, with the following history:—Some months before admission he had been attended for an attack of "inflammation of the bowels." He had been ill for two days and three nights before he came to the Royal Infirmary, but the symptoms of obstruction did not become very urgent until the third night of illness. He was operated on at once. A very marked constriction of the small intestine was found on the left side of the abdomen, due to a peritoneal band, which ruptured when the constricted loop was being lifted to the surface. The intestine was washed with saline solution, and as the obstruction was completely relieved, the wound was closed. He made an uninterrupted recovery.

CASE II. *Intussusception. Cœliotomy. Reduction. Recovery.*—W. D. R., aged 13, was admitted on May 3, 1904, at the request of Dr M'Hardy, Banchory. The boy felt ill on Sunday, 1st May, and complained of headache, followed by sickness and vomiting. On Monday he felt pain on the left side of the abdomen a little above the level of the umbilicus. The pain was always localised there, being at first intermittent and then continuous. The vomit at first consisted of stomach contents only and then became bilious, but was never fæcal. When the pain commenced he had tenesmus, and passed a little blood and mucus. After that, neither fæces nor flatus passed. Hiccough began on Monday and persisted till after operation. He was seen by Dr M'Hardy on Tuesday at 4 A.M., and again at 10 A.M. and 12 noon, when he was sent to the Infirmary.

On admission, he lay on his right side with his legs drawn up. He complained of pain on the left side of the abdomen about the level of umbilicus, and there was persistent hiccough. Pulse 98, of fair strength; respirations 28; temperature 97.8. The face was flushed and looked anxious. Tongue dry and coated.

The abdomen was lax, but no tumour could be palpated. Pain was felt on deep pressure a little to the left of the umbilicus. There was no tenderness in the appendix region, and nothing was to be felt at the common sites of hernia.

The abdomen was opened, and after a short exploration a tumour was felt and brought out at the wound, when it was found to be a largish ileo-cæcal intussusception. Reduction was easily performed and the abdomen closed.

Recovery was perfect, and the boy was discharged on May 31st.

CASE III. *Strangulation by bands. Cœliotomy. Recovery.*—S. R., aged 34, was sent to me at the Royal Infirmary on August 8, 1904, by Dr Smart, who gives the following history:—The patient had a history of long continued but intermittent constipation with attacks of colicky pain. There had been no movement of the bowels for two days, and as the pain had increased in severity Dr Smart was called in on the morning of August 8. On examination he found a fair amount of tympanites, with severe colicky pains especially about the umbilicus and radiating to the left side. The vomiting at this stage was bilious. There was no fever, and though the patient's condition did not look serious, Dr Smart was not satisfied, and decided to see her in a few hours after ordering a large soap and water enema and hot fomentations. When he returned he found the condition considerably aggravated. The pain was very much greater, tympanites had increased, and the vomit was of a fæcal character. Patient was persuaded with difficulty to go to the Infirmary. I saw her late that evening, but pain and vomiting had stopped, and her condition generally was so good that I decided to put off operation till morning. As there had been no passage of flatus nor response to enemata next morning I fortunately decided to operate even in the absence of urgent symptoms. On opening the abdomen there were marked signs of old-standing peritonitis, and two peritoneal bands were found, one long and loose covering several coils of intestine, the other small and firmly constricting one loop. These were separated and removed. The patient's progress was thereafter uninterrupted.

CASE IV. *Strangulation by band. Cœliotomy. Recovery.*—Mrs M., aged 71, was attended at her home by Dr Askew, Fochabers. He was called to see her on Monday, March 21, 1904. She then complained of pain in the right hypochondriac region. A carminative mixture was ordered, and a warm application to the part. On the following day the pain increased and vomiting commenced. There had been no movement of the bowels for two days. On March 23 the pain continued and the vomit was now bile-stained. Morphia was given hypodermically, and the patient rested till early in the morning of the 24th, when vomiting recommenced and became fæcal in the forenoon. Dr Askew decided on operation, and I went to Fochabers late that night. Immediately on opening the abdomen a loop of small intestine was found, firmly constricted by a broadish peritoneal band. This was adherent to the intestine and had to be separated with a blunt dissector. It was then ligatured and removed. The operation took only a few minutes, and the immediate result was most gratifying. With careful nursing

and attention the patient made an excellent recovery, and is now in perfect health.

CASE V. *Obstruction from adhesions. Cœliotomy. Recovery.*—Mrs W., aged 70, was seized in September 1903 with very severe diarrhœa with blood in the stools. This continued for a week with many motions every day, but eventually yielded to treatment carried out by her medical attendant, Dr Gibb. After the diarrhœa stopped, there was no special symptom for twenty-four hours, when she was seized with very severe abdominal pain which was not located in any particular region. Severe vomiting and a desire for stool accompanied the pain. The abdomen became distended, and as calomel and large enemata had no result, a diagnosis of intestinal obstruction was made, and Dr Gibb asked me to see the patient with a view to operation. The history, age of the patient, and the configuration of the abdomen suggested tumour of the descending colon as the cause of her trouble. She was removed to a nursing home. The abdomen was opened high up on the left side to expose the colon. The transverse colon was distended with fæces, and the descending colon was empty. No tumour could be palpated in the colon, but there were adhesions at the splenic flexure. These were separated, and after the question of a temporary colotomy had been considered and negatived, the abdomen was closed. There was passage of flatus followed by a large stool, as the result of an enema given some hours after operation. The patient was immediately relieved, and has had no trouble since.

CASE VI. *Acute obstruction following on chronic obstruction due to carcinoma of descending colon. Colotomy with puncture of small intestine. Subsequent Colectomy and Anastomosis. Recovery.*—Mrs C., aged 49, was admitted to the Royal Infirmary in May 1904, suffering from chronic intestinal obstruction. The notes of her case are as follows:—

Six months ago she began to be troubled with obstinate constipation, only enemata having any effect in moving the bowels. Constipation was accompanied by pain rather above the umbilicus, and has gradually increased. There has been no movement of the bowels for the last five weeks. Three weeks ago abdominal distension began and has gradually increased. During the past two weeks there has been occasional vomiting.

Physical Examination.—The abdomen is markedly distended, most prominently so below the umbilicus. On palpation no

tumour can be felt. Pelvic and rectal examination reveal nothing. A pint and a half of fluid goes in by enema.

The patient, who was in the ward of my colleague Mr Marnoch, was handed over to me in his absence. I found the abdomen enormously distended, and though a tumour of the colon had been suspected, it was quite impossible to make out details by palpation or otherwise. An incision was accordingly made in the middle line between umbilicus and pubes and a carcinoma of the sigmoid flexure was made out. A second incision was made as for sigmoidostomy, and the tumour and part of bowel above and below it were brought out and supported on a Maydl's rod. To relieve the enormous distension the colon was opened above the tumour, but the drainage so obtained was so slight that I found it necessary to puncture two enormous loops of small intestine which protruded through the central incision. The escape of fæces and gas through these punctures eventually reduced the size of the loops so that they could be returned into the abdomen, which was done after suture and lavage.

Large quantities of fæcal matter came from the colotomy wound for some days. Ten days after the first operation I removed the growth and intestine down to Maydl's rod under eucaine anæsthesia. The patient then went home for a month, and on Mr Marnoch's return to duty was operated on by him by Greig Smith's method, by which the continuity of the colon was restored. She left the Infirmary in October, cured.

CASE VII. *Recurrent ileus from band. Operation. Recovery.* —J. M., aged 21, was sent to me by Dr Sellar, Aberlour, in May 1904. Up to the beginning of that year he had enjoyed perfect health, but was suddenly seized one night while in bed with a sharp, intermittent, colicky pain in the upper part of the abdomen, shooting from right to left. Next day he worked as usual, although the pain was still severe and attended with vomiting. The bowels had opened well and naturally on the morning of the first day of illness, but after that he had to get enemata. After one day's work he had to take to bed. Thirst was much complained of, and he was fevered at night. After a day or two in bed the abdomen began to swell, mostly above the umbilicus and more on the right side than on the left. No flatus was passed for 10 days, and there was constant "rumbling in the stomach." After 10 days' illness all the symptoms gradually subsided. He felt very weak and did no work for two months. In April 1904 he had a similar attack, which was not so acute, but on this occasion the pain and distension were less and vomiting was absent.

He came to the Royal Infirmary in May 1904. On admission his general condition was found to be good. The abdomen was considerably distended, especially in the middle and lower parts. No tumour could be felt. Gurgling was constantly going on in the abdomen, though no visible peristalsis was to be made out.

Laparotomy was performed on June 4, 1904. At one part of the ileum a constricting band was found. When this was freed the bowel did not expand well, but the question of resection or lateral anastomosis was put aside for the time being. Pain and gurgling returned two days after operation, but yielded to enemata and opium. Free and natural movement of the bowels began, and on June 26 he was able to be out of bed, free of all discomfort. He was dismissed on June 29.

CASE VIII. *Partial obstruction due to mesenteric cyst of sigmoid flexure. Operation. Recovery.*—Dr Hunter, my house-surgeon, has furnished the following notes of this case:—

A female, aged 31, was admitted to the Royal Infirmary in August 1904. Her family and personal history were good. The first sign of anything unusual occurred about a year before admission, when she had pain and flatulence with occasional diarrhœa. In the end of 1903 she attended the Gynæcological Department, and was treated there for retroversion of the uterus, with leucorrhœa and tenderness.

In March 1904 she felt a tumour in her abdomen on the left side, a little above and to the inside of the anterior superior spine. It was movable and caused her pain in the sacral region when at stool, especially when she had diarrhœa. Sometimes the abdomen became distended, especially above the level of the umbilicus, and she had almost constant gurgling. Micturition was occasionally attended with pain.

On inspection the abdomen looked quite normal except on the left side, where there was a distinct fulness.

Palpation revealed a tumour about the size of a small cocoa-nut, which felt hard and regular in outline, and was movable in all directions. The fingers could be got round it fairly well, and it was tender on the inner side. There was no feeling of fluctuation in the tumour.

Injection of fluid per rectum showed that a fair amount could be tolerated, and that the bowel was patent as it did not get distended below the site of the tumour.

On August 8, 1904, cœliotomy was done. The tumour was found to be a cyst of the meso-sigmoid and contained a thin pale-greenish fluid. It was removed and the layers of the mesentery sutured. Recovery was uneventful, and she left on

August 31. She was seen on December 2, when she was quite free from abdominal tenderness and distension.

CASE IX. *Chronic obstruction and abdominal pain due to kinking of sigmoid flexure from adhesions to oöphorectomy stump. Operation. Recovery.*—(For the notes of this case I am indebted to Dr J. Wallace Milne.)

L. H., aged 37, multipara, began two years ago to suffer from intermittent pain in the left iliac fossa, worse before menstruation (which was regular), and easing off as the flow was established. She was examined by Dr Milne in April 1904, when she gave the above history, and also complained of difficulty in defæcation, not from constipation but, as she explained, from a feeling of "something impeding the motion." There was also passage of slime with occasional blood. Patient was examined *per vaginam* and a tumour of the left ovary was made out well back in the posterior fornix. Operation was advised. She was subsequently seen by another practitioner, who was unable to satisfy himself as to the presence of tumour, and treated the case by rectal irrigation for colitis. The symptoms still continued. On May 1, Dr Milne removed the left ovary, which was cystic and about the size of a small orange. The lower intestine was examined at the time of the operation and found healthy. There were then no adhesions. She made an excellent recovery and the symptoms were all relieved for over six weeks.

There was then a recurrence of the obstructive symptoms. Dr Milne examined her in October and was of opinion that adhesions existed on the left side, narrowing the lumen of the bowel. He advised operation, and she was admitted to Mr Riddell's ward. At the operation Mr Riddell found the sigmoid flexure kinked and held down by dense adhesions to the ovarian stump. After careful dissection there was found in the centre of the adhesions the silk ligature which had secured the pedicle and round it a drop of pus. The ligature was removed, the adhesions freely separated, and the parts sutured so as to prevent kinking from fresh adhesion.

Patient was seen to-day (March 17). She is in excellent health and all her symptoms have disappeared.

CASE X. *Strangulation of intestine behind irreducible femoral hernia. Operation. Recovery.*—Mrs A., aged 52, was sent to the Royal Infirmary as a case of acute intestinal obstruction. Her medical attendant, who had recognised an irreducible femoral hernia of twenty years' standing, thought the cause of the obstruction was intra-abdominal, as she complained of pain only

in the right iliac region. She had been ill for some time and was collapsed on admission. Her condition was so serious that I decided to operate under local anæsthesia. On opening the hernial sac I found a very deeply congested and firmly constricted loop of intestine behind a largish irreducible epiplocele. The neck of the hernia was incised and the intestine, after thorough lavage, was pulled down and examined. It was replaced in the abdomen, but as its condition was very doubtful the operation was not completed, the wound being left open and gauze packing placed in the wound and through the neck of the sac up against the intestine. The patient soon rallied, the obstructive symptoms rapidly disappeared, and two days later the operation was completed under general anæsthesia by removal of epiplocele and radical cure of the hernia.

Births and Deaths registered in Eight of the Principal Towns of Scotland during February 1905

DURING the month of February 1905, there were registered in the towns of Glasgow, Edinburgh, Dundee, Aberdeen, Paisley, Leith, Greenock and Perth, the births of 3608 living children, of whom 1877 were males and 1731 females. These births are equivalent to an annual birth-rate of 26.9 per thousand of the estimated population. The equivalent annual birth-rate for the month was highest in Aberdeen, 30.0, and lowest in Edinburgh, 21.5. In Greenock, it was 29.3; in Glasgow, 28.9; in Leith, 27.1; in Paisley, 25.6; in Dundee, 25.5; and in Perth, 22.5. The births registered in these towns during the month numbered 535 fewer than in the previous month, and 319 fewer than in February 1904.

Of the total births, 262, or 7.3 per cent., were illegitimate. This rate for the month was highest in Aberdeen, 10.9, and lowest in Paisley, 3.6. In Perth, it was 8.5; in Edinburgh, 8.3; in Dundee, 8.1; in Greenock, 7; in Glasgow, 6.6; and in Leith, 4.7.

Deaths registered in these towns during the month numbered 2450, the equivalent annual death-rate being 18.3 per thousand. The number of deaths registered is 640 fewer than in January, and 468 fewer than in February 1904. The death-rate for the month is 2.5 less than that for January, and 3.0 less than that for February 1904. The death-rate for the month was highest in Perth, 24.8; and lowest in Paisley, 14.2. In Aberdeen, it was 21.1; in Dundee, 20.2; in Glasgow, 18.3; in Edinburgh, 17.1; in Greenock, 16.3; and in Leith, 15.9. In Dundee and

Perth the death-rate was higher than it was in January, while in each of the other towns it was lower than in that month.

Of the 2450 deaths registered during the month, 808, or 33.0 per cent., were of children of less than five years old; and 658, or 26.9 per cent., were of persons of over sixty years. Deaths of children of under five were 266 fewer than in January, and 253 fewer than in February 1904. Deaths of persons of over sixty were 174 fewer than in January, and 85 fewer than in February 1904.

Deaths of children of less than one year old numbered 516; these are 123 fewer than in January and 116 fewer than in February 1904. The infantile mortality-rate for these eight towns combined, *i.e.* deaths under one year per thousand births, was 136, which is 25 per thousand less than that for February 1904. This rate was for the month highest in Perth, 210, and lowest in Paisley, 80. In Aberdeen, it was 179; in Glasgow, 142; in Dundee, 139; in Greenock, 118; in Edinburgh, 112; and in Leith, 99. In Perth this rate was higher than in January; in Glasgow and Greenock this rate was the same as in January; while in the remainder of these towns this rate was less than in January.

The principal epidemic diseases were the cause of 197 deaths in these eight towns during the month; this is 108 fewer than in January, and 71 fewer than in February 1904. The equivalent annual death-rate from these causes was 1.5 per thousand, which is 0.6 less than that for January. This rate for the month was highest in Glasgow, 1.9, and lowest in Leith, 0.5. In Paisley, it was 1.4; in Greenock, 1.3; in Dundee and Aberdeen, 1.2; in Perth, 1.1; and in Edinburgh, 1.0.

There were no deaths from small-pox in these towns during the month. Deaths from measles numbered 21; this is 31 fewer than in January, and 65 fewer than in February 1904. Deaths from scarlet fever numbered 5, which is 6 fewer than in the previous month. Deaths from hooping-cough numbered 107; this is 69 fewer than in January, but 3 more than in February 1904. Deaths from diphtheria numbered 22, which is 1 fewer than in January. Deaths from enteric fever numbered 16, and from typhus fever 8. Of the latter, 7 were in Aberdeen, and 1 in Dundee. Deaths from diarrhœas numbered 18; this is 1 fewer than in January, and 5 fewer than in February 1904.

Deaths from influenza numbered 35; this is 2 fewer than in January, but 11 more than in February 1904.

Deaths from the puerperal septic diseases numbered 9; from malignant disease, 113, of which 57 were ascribed to carcinoma, 12 to sarcoma, and 44 to cancer not otherwise defined. Deaths from heart disease numbered 220; from

apoplexies, 121; from premature birth debility, 97; and from alcoholism, 12.

Deaths from pneumonia numbered 251, and constituted 10.2 per cent. of the total deaths; while those from bronchitis numbered 211, and constituted 8.6 per cent. of the total deaths. Deaths from pneumonia were 165 fewer than in January, and 8 fewer than in February 1904; deaths from bronchitis were 115 fewer than in January, and 105 fewer than in February 1904.

Deaths from phthisis numbered 242, and constituted 9.9 per cent. of the total deaths. These deaths are 17 more than in January, and 5 more than in February 1904.

Meetings of Societies

Edinburgh Obstetrical Society

THE fifth ordinary meeting of this Society was held on the 8th March—Dr N. T. Brewis, President, in the chair.

Professor Simpson exhibited: (1) Two uteri affected with cervical cancer. One was removed by abdominal and the other by vaginal hysterectomy. (2) An ovarian tumour removed from a woman aged 72. (3) Cystically degenerated cervical fibroid with an ovarian cystoma. (4) Fibroid tumour with ovarian disease removed by pan-hysterectomy. (5) Subperitoneal fibroid of the uterus which simulated carcinoma of the ovary. (6) Umbilical cords showing various malformations.

Dr F. W. N. Haultain showed: (1) An exomphalic anencephalic monster. (2) Epithelioma of glans clitoridis. (3) Hæmatoma of the ovary.

Dr Haig Ferguson exhibited: (1) A large fibroid, which involved the cervix as well as the body of the uterus, and was removed by pan-hysterectomy. (2) A drawing of a specimen showing vesico-vaginal fistula, which was closed by turning the cervix into the bladder. For nine years the patient discharged the menses *per urethram*.

Dr J. W. Ballantyne gave a communication on: (1) "A case of eclampsia in which lumbar puncture was performed." He said that on account of the frequent failures of the ordinary methods of treatment of this affection, new plans were constantly being introduced. It would not be denied that the giving of saline infusions, the employment of Bozzi's dilator and the administration of thyroid extract or of iodide of potassium had

all to a certain degree tended to diminish the risks of eclampsia gravidarum. Yet even in skilled hands they frequently failed. The author had met with a case of eclampsia in October last of so severe a type that it had resisted treatment by saline infusions, morphia and acetate of potash, as well as of careful dieting and the use of purgatives, so he felt at liberty to try the effect of lumbar puncture. The patient was a primipara aged 25, at about the sixth month of her pregnancy; the urine was very scanty, highly albuminous, contained hyaline and granular casts as well as blood corpuscles. She had had numerous fits before admission to the Maternity Hospital. Having been put to bed between blankets and surrounded by hot bottles, two pints of saline infusion was injected under the breasts, half a grain of morphia was injected hypodermically, and ℥ii castor oil were given. Hot fomentations were applied to the loins, and milk and water were given as a drink. Later in the day, chloral and bromide of potash were given, as well as a diuretic mixture containing acetate of potash. Under this treatment her condition improved for two days, when she again relapsed and her condition became very grave, and on the seventh day after her admission Dr Ballantyne tapped the spinal canal twice, but on each occasion only a few drops of clear fluid came away. From this time onwards, however, until her death four days later, no more fits occurred. Five hours after the second puncture, labour was terminated by the introduction of the Bozzi dilator, and a 6½ months' fœtus was extracted by the forceps. During the next three days jaundice became very pronounced; there was complete unconsciousness, vomiting was frequent, and the motions white. The post-mortem examination showed that the interior of the uterus was healthy; the liver was soft, flabby, bile-stained and fatty; some chronic perihepatitis was present. The spleen was not enlarged, but was soft, flabby, and acutely congested. The kidneys were slightly enlarged, and both showed marked chronic parenchymatous nephritis with intense fatty changes with general bile-staining and old infarcts. Chronic pleurisy of the right side of the chest was present, together with pneumonic consolidation of the right base. Probably the patient's health even before pregnancy occurred was far from good. Renal inadequacy was present and needed only the strain of pregnancy to bring it into full evidence. The early date of the onset of the fits supports this conclusion.

The theory of the mode of action of lumbar puncture in eclampsia is, that as the convulsions are thought to be due to increased cerebro-spinal tension, they will disappear if the tension be lowered. After alluding to recorded cases (some twenty in number), Dr Ballantyne concluded by stating that this method

of treatment might be useful in those cases of eclampsia in which the chief therapeutic indication was to control the fits so as to gain time for the application of other methods.

(2) A case of Malta fever in pregnancy which will appear in a future number of the *Journal*.

Professor A. R. Simpson gave a communication "On a case illustrative of Heredity in Ovarian Tumours," which appears on page 306.

The paper was discussed by Drs Ballantyne, Haultain, and N. T. Brewis.

Dr Malcolm Campbell read a research on the "Pathological Conditions of the Ovaries as a Possible Factor in the Etiology of Uterine Fibroids," which will appear in a future number.

Glasgow Medico-Chirurgical Society

THE ninth ordinary meeting was held on March 17 in the Royal Infirmary, when there was a large turn-out of members; the President (Dr Newman) occupied the chair. The evening was occupied with a demonstration of clinical cases, as follows:—

(1) Dr M'Vail showed: (*a*) A case of chronic fibrosis of the left lung. (*b*) A case of anterior polio-myelitis. (*c*) A case of arthritis deformans. (*d*) A case of rheumatism.

(2) Dr Middleton showed: (*a*) A child suffering from attacks of stridulous croup, due to caries of the upper dorsal vertebræ. (*b*) A boy with marked symptoms of cerebral tumour.

(3) Dr Lindsay Steven showed: (*a*) A sarcoma of the lung secondary to a primary tumour in the axilla, which had been removed eleven months previously. (*b*) Water-colour drawings from a fatal case of symmetrical gangrene of the lower extremities, associated with tubular nephritis and thrombosis of the heart, but probably of the nature of Raynaud's disease. (*c*) A case of spasm of the œsophagus, with a history of anuria of at least two months' duration.

(4) Mr Pringle showed: (*a*) Two patients after excision of bowel. (*b*) Some patients after trephining for various cerebral conditions. (*c*) Some patients after acute osteo-myelitis.

(5) Dr Monro showed: (*a*) A case of leukæmia with displacement of the greatly enlarged spleen. (*b*) A case of early tabes, with arthropathy of the hip and knee. (*c*) A case of optic atrophy in early tabes. (*d*) A case of optic atrophy with lateral sclerosis. (*e*) A case of tabes with ptosis and perforating ulcer of the foot.

(6) Dr Allan showed a case of aneurism of the aorta, and one of pneumothorax.

Glasgow Pathological and Clinical Society

THE sixth ordinary meeting was held on 13th March—the President, Professor Robert Muir, in the chair. There was a good attendance.

1. Dr Walker Downie showed two cases illustrative of persistence of the branchial clefts. The first was a young woman of 25, who had been under his care in the Western Infirmary in 1901. She had then a rounded swelling in the neck, at the inner side of the sterno-mastoid, and an inch above the sterno-clavicular joint; from this a cord-like structure ran up and opened into the mouth at the posterior pillar of the fauces. Fluid discharged here, at first at intervals of seven to ten days, latterly every third day. Dr Downie operated, removing the cyst and half the duct, and scraping the other half. The patient remained well for two years, but a small amount of discharge has now begun again. The second patient was a man of 26, with a swelling on the right side of the neck, about half an inch above the sterno-clavicular joint. There was at first a red spot over it, which eventually enlarged, and formed an opening through which some discharge escaped. From the swelling a fibrous cord led upwards, opening into the mouth behind the right tonsil. There is no escape of secretion here. These cysts and fistulæ result from non-obliteration of the branchial clefts, all of which close normally save the first. The fistulæ are generally long, sinuous tracts, lined by columnar epithelium; the cysts have squamous cells on their inner surface. The latter are generally on the third cleft, between the hyoid and sterno-mastoid, and the best treatment, if they become annoying, is to dissect them out, and scrape the lining membrane of the duct. The internal opening is generally into the pharynx.

The cases were discussed by Drs Arch. Young, Cowan and Maylard, and Dr Downie replied.

2. Mr Maylard showed a young man with lympho-sarcoma of the neck, and Dr John Anderson demonstrated a specimen removed by operation. The patient was a young man of 24, admitted to the Victoria Infirmary last January with a large swelling of the left side of his neck, extending from the ear to the jaw, and from the middle line behind to that in front. It was lobulated and growing rapidly. He complained of little else save general weakness. Mr Maylard excised a large mass of glands, weighing 20 oz. and containing some fifty separate glands, very soft and vascular. The temperature before this had been rising each night sometimes to 103°, but now fell to normal. In a short while, however, the enlargement began

again, with rise of temperature again. There was no splenic increase, nor enlarged glands elsewhere. Dr Anderson reported that many of the glands were a little caseous, and microscopically the tissue consisted of fibrous stroma with cells of large size in the spaces. Some of these cells had one large nucleus, many were multinucleated. A recent blood-count gave 3,360,000 red cells, 22,000 leucocytes, and 45 per cent. of hæmoglobin. The differential count of white cells yielded per centum, 70 polymorphs, 5.4 large mononuclears, 23.4 small mononuclears, and 0.12 eosinophiles.

The President, speaking on the case, considered it to be of the nature of a lymphadenoma; Drs Cowan, Taylor and Young also spoke.

2. Dr Kerr Love described a case of otomycosis affecting the middle ear. The patient was a man who had had discharge from the ear for some time; the tympanum was largely gone, and the middle ear was a granulating mass. When examined a week ago a wet, felt-like body with black spots on it was seen, and was easily removed. The appearance suggested at once an infection with aspergillus niger or nigrescans, and microscopic examination confirmed this, showing mycelium mixed with epithelial cells and typical hyphae and gonophores. This condition was noted first about fifty years ago, and a good description was given by Burnett in 1879. It is rare in Britain, more common in Europe and America, generally attacks adults, and is in general in the external auditory meatus. The fungus is sometimes yellow, as when the aspergillus flavus is the infective agent.

4. Dr T. H. Teacher gave an interesting account of a case of intestinal anthrax, and showed many specimens (naked eye and microscopic). The patient was a paint-grinder aged 27, who was admitted to the Western Infirmary about 11.30 P.M. on January 31, 1905, in a delirious state. The history was that he was quite well apparently on the morning of that day; in the course of it he complained of headache and went to bed. By 7 P.M. he was excited and delirious, moaning and holding his head while he lay huddled up in the bed. He had always been a respectable steady man, and he worked with white lead. He was admitted to Professor Stockman's at 11.15 P.M. in a delirious condition. He lay in bed huddled up with his legs flexed and his head sunk on his breast. Pulse was 90 and temperature 98°.4; the pupils were equal and of moderate size; there was no evident paralysis, and no discharge from the ears, or hæmorrhage about the eyes. The urine was drawn off by catheter, and contained sugar and albumin; there was some pain on epigastric pressure, but no distension. At 3 A.M. on February 1

he had a convulsion, at first affecting the face and later becoming general; three more followed, and at 3.30 A.M. he died, only eighteen hours after his earliest symptoms.

When Dr Teacher opened the body he noted that the heart looked flaccid and fatty, that the lungs appeared normal, save that one large lymphatic gland with some hæmorrhage lay at the root. The peritoneum contained 10 oz. of yellow semi-purulent fluid, and the bowels seemed dulled and showed a few dark spots. The liver and spleen were large and soft. The dura seemed normal, but on opening it the brain was seen to be covered by a diffuse hæmorrhage tailing off towards the base. The general aspect of the case led Dr Teacher to suggest anthrax, and films made from the spleen and brain showed at once many organisms of the size and shape of the bacillus anthracis, along with micrococci, diplococci, and smaller bacilli. In the small bowel, 4 feet from the pylorus, was found a dark congested area with a slough in the centre, and four smaller spots were noted in the ileum and two or three in the stomach wall. From the organs pure cultures of B. anthracis were obtained. A guinea-pig inoculated died on the second day, and from it were obtained again anthrax organisms, diplococci (capsulated), and a bacillus showing polar staining. The chief point of entrance was probably the intestinal lesion. The case was reported to the sanitary authorities, who made a full inquiry and examined bacteriologically many articles belonging to the patient, but with negative results.

Drs Maylard and Carstairs Douglas spoke on the case, and the President.

5. Dr Grant Andrew showed an arm amputated by disarticulation of the humerus for a large fibro-sarcoma.

Glasgow Southern Medical Society

THE tenth ordinary meeting was held on February 23, when the Honorary President, Mr Henry E. Clark, *C.M.G.*, delivered an address to the Society. There was a good attendance.

Mr Clark selected as his subject the progress and changes in surgery during the thirty-four years since he became associated with the Glasgow Royal Infirmary. At the outset he desired to comment on the way in which surgery had been specialised since he was a student. At that time there was only one man in Glasgow (Dr George Buchanan) who was purely a surgeon; now about a score made an income in that branch of medicine alone. Another thing that was striking was the great increase

in operative work. In 1870 there were performed in the Glasgow Royal Infirmary (the only large hospital then) 470 operations; in 1903, in the Royal, Western, and Victoria, 6384 operations were done, besides a great many more in the smaller hospitals. Interference is now more skilled, more sure, and more effective, and that is largely due to aseptic methods. There is no cavity, no viscus in the body which the surgeon does not consider his province, and many operations which were regarded as remarkable twenty years ago (*e.g.* ovariotomy) are now done daily as a matter of course. Then, further, the surgeon of to-day relies more than his predecessor did on exact scientific study in auxiliary branches; his anatomy, for example, is much more precise and reliable, and he daily gains help from the bacteriological investigations, and especially in tubercular, gonorrhœal, and pyogenic infections, and in anthrax and tetanus. At the Royal Infirmary they make a practical use of this for testing the bedding after a septic case has used it. The mattrass is taken downstairs, the covering washed with formalin, and the hair heated. After this, cultures are made from part of the hair and ticking, and those are not returned to the wards till free from pathogenic organisms. In this way septic dermatitis had been stamped out. Referring to the introduction of antitoxins, Mr Clark said that except in the case of the diphtheria serum, his opinion was not very favourable, and while readily admitting the great aid the X-rays had proved in diagnosis, he did not think that as curative agents they held a very secure position; of electricity also he would speak with caution. He mentioned how much the modern surgeon owed to the splendid operating-theatres and perfected instruments of to-day, and paid a high tribute to the services of the nursing staff, whose members were trained to be skilled observers, and on whose capability and devotion the success of many an operation depended. There was one point on which he would like to touch, and that was the surgical mortality and operative mortality of to-day. Taking the general mortality in surgical wards, it was in 1870 5.3 per cent., and in 1903 8.7 per cent. This was not because the Royal Infirmary was an old building; a similar figure obtained in the Western and Victoria. Rather was it due to the more serious nature of the cases admitted, the greater turn-over, and to the fact that many cases now went to surgical wards which thirty years ago would have gone to the medical side, such as gastric ulcer, gall-stones, brain-tumours, and so on. On the other hand, the real operative mortality had fallen, being now 4.3 per cent., while in 1870 it was 6.8.

At the conclusion of his paper Mr Clark described four surgical cases of interest recently under his care: (1) A case of

supra-scapular amputation of the left arm for sarcoma of the head of the humerus in a lad of 18; the scapula, outer third of clavicle, and the upper arm were removed. Healing was rapid and good; the patient was shown. (2) A case of marked coxa vara (double) in a little boy, causing very peculiar locomotion; a double supra-condyloid osteotomy was done, and the feet turned in till the toes slightly overlapped. The result was very good. (3) A case of pen-knife wound in the upper third of the thigh, where in the same patient Mr Clark ligatured first the profunda femoral artery and vein, next the femoral artery, and lastly the common iliac, on account of recurring severe bleeding. The patient made a very good recovery, and is now at work regularly as a porter. (4) Two cases of malignant disease of the breast, where recurrence has taken place in the retina—unilateral in one instance, bilateral in the other.

On the motion of Dr James Hamilton, the President, a very hearty vote of thanks was accorded Mr Clark for his interesting address and demonstration.

Forfarshire Medical Association

THE fourth evening meeting of the session was held in the School of Medicine, Dundee, on March 9th, Dr Kinnear in the chair.

Dr C. Kerr showed a male child, 2½ years old, who suffered from an unusual form of paralysis with mental deficiency. Apart from an attack of jaundice shortly after birth (which was normal—an easy labour), he appeared healthy and was fairly well nourished. When seven or eight months old, the mother noticed inability to hold up his head, which increased as he grew older, and was accompanied by a weakness in the back; he was never able to sit up or walk, and appeared to take but little interest in his surroundings. He never had any convulsions. He became very emaciated until January 1904, since when his condition has remained unchanged. At present, lies unable to move or turn, body and limbs wasted, complete motor paralysis, incontinence of urine and constipation (bowels only move with enema). Reflexes exaggerated, some rigidity in left leg and right arm, but all the limbs become rigid when excited, as when food is given; has great difficulty in swallowing, the attempt bringing on a state of spasm. When sat up the head falls to one side and he goes "all of a heap" as if invertebrate. Pupils regular and equal, react to light; it is difficult to say if the sight is impaired, but probably not. Listless and apathetic, and has the vacant look of mental enfeeblement. Examination of the

eyes was by no means an easy matter, but as far as could be ascertained the fundi were normal. At first sight it was thought the case might be one of infantile cerebral degeneration, as described by Warren Tay, Kingdon and others, but the absence of ocular changes put that out of court. The head was 18½ inches in circumference, therefore the case was not one of microcephaly. There was no history of syphilis. Inherited syphilis, diplegia or congenital paraplegia, and other described infantile cerebral palsies would not fit the case. The fact that the child was once healthy, able to move its limbs and feed itself (was brought up by bottle) would seem to point to some actual degeneration having taken place in the brain.

Dr G. Pirie read a short paper on the uses of the X-rays pointing out their value both in diagnosis and treatment. He first exhibited a series of photographs he himself had taken, showing the position of various foreign bodies, such as a pin in the thumb, a piece of iron in the palm, a bullet in the elbow, etc., and various fractures of bones. He then gave a résumé of the X-ray treatment of lupus and other tubercular affections, rodent ulcer and superficial epithelioma. As far as he could judge, X-rays seem to promise better results than Finsen light in the treatment of lupus. In superficial epithelioma it was of great value, and was undoubtedly the means of eradicating the disease in many cases. As yet it could not be said to be of much use in the deeper seated malignant diseases. Cases such as cancer of the breast were still best treated with the knife, but those patients who were beyond surgical aid could be greatly benefited by the X-rays, as it was invaluable in allaying the distressing pain of that disease and might to some extent cause arrest for a time. He mentioned a case of chronic swelling of the elbow-joint, accompanied by weakness and emaciation, to all appearance of a tubercular nature, that had been made better by several applications of the X-rays for five minutes at a time. The patient unfortunately left the town, and it was not known if the cure was permanent.

In the discussion which followed, Mr Greig pointed out how photographs were sometimes misleading, and a foreign body which looked as if it should be easy of removal often proved to be very difficult to find. He also emphasised the great value of the rays in giving relief in painful cancers.

Dr Colman, Broughty Ferry, read the paper on "The Use of Nitrite of Amyl in Deep-Seated Hæmorrhage," which will appear next month.

Professor Stalker read notes on Bright's disease, in which he stated that the disease had many special points of interest, which were obvious and rational enough when considered prac-

tically, but difficult to explain theoretically. The first point of interest was that there is always a cause for Bright's disease, if one knew where to look for it. He illustrated this by reference to several cases of chronic disease lately under treatment. One case was a girl, who had suffered from tubercular abscesses about the neck for five years; another, a boy who had the distinct facial aspect of congenital syphilis. A man, 40 years of age, apparently in good health, presented himself for examination for life insurance; albuminuria was discovered, and several years afterwards he died from chronic Bright's disease. Hidden by a thick beard were seen numerous cicatrices on the neck. A friend who had known him as a boy remembered that he used to wear, for many years, a black bandage round his neck, evidently to conceal some glandular affection. There was the cause for his Bright's, but the fact that he had led a quiet, steady life delayed the disease.

Chronic septicæmia is the chief cause of the trouble, the most common antecedent of all being tuberculosis in some of its forms. Dental caries which is widespread and neglected, with all its concomitant disturbance of gastric and intestinal function, must be placed next to tubercle as a cause. Syphilis is a recognised cause, and chronic eczema, which in the course of time must pour much septic matter into the blood, cannot be overlooked as a cause. Another point of interest is treatment. No chronic disease presents so fair a field for treatment as does Bright's disease. The patient, however, must give up everything to treatment, and it must be carried on for years. This was illustrated by the case of a young woman who for many years suffered from the disease, with recurrent attacks of dropsy. After prolonged and patient treatment she got well, married, became a mother with no untoward symptom in her confinement, and remains well. There is no specific remedy but rest, and rest in bed is the most essential of all. One has often seen, in a bad case of dropsy in which it is one's aim to get rid of the fluid quickly, digitalis and diuretics even in one day have a wonderful effect, and a large increase in the amount of urine takes place; yet the same result can be obtained, though in a little longer time, by rest in bed and appropriate diet alone. A quiet life is most essential, and in all cases a permanent cure must of necessity be slow.

Mr Greig questioned the statement that tuberculous glands were a common cause of Bright's disease, but, as Professor Stalker pointed out, the surgeon nowadays so early removed glands that the deleterious effect of suppuration was being reduced to a great extent.

Drs Buist, M'Vicar and others took part in the discussion.

Editorial Notes and News[1]

Fourth Centenary of the R.C.S. Edin.

THE Royal College of Surgeons of Edinburgh, the oldest of all the Corporations, reaches its four hundredth birthday in July, and it is expected that a large number of Fellows will attend the celebrations on the 20th and 21st.

The arrangements are as follows:—

First Day—

(*a*) Welcome to the guests by the President in the College, after which the company will walk in procession to St Giles' Cathedral, where Divine Service will be held. *Academic dress essential.*

(*b*) Address by the President, and bestowal of Honorary Fellowships. *Academic dress essential.*

(*c*) Evening reception.

Second Day—

(*a*) Visits to the College Museum, the Royal Infirmary, etc.

(*b*) Garden Party.

(*c*) Banquet in the Music Hall.

The Honorary Secretary of the Fourth Centenary Celebrations, Mr J. W. DOWDEN, 27 Walker Street, will be much obliged if Fellows who intend being present will intimate the fact to him as soon as possible, in order to facilitate arrangements.

Presentation to Dr William W. Ireland.

A PLEASING ceremony took place in the Library of the Royal College of Physicians on the afternoon of March 4. The occasion was the fiftieth anniversary of the medical graduation of Dr William Ireland. A large number of Dr Ireland's friends and admirers, including some from distant parts of the country, assembled to offer him their congratulations, along with an illuminated address and a substantial token of their esteem.

The President of the College (Dr Playfair) was in the chair.

Apologies for absence were intimated from Sir W. Gairdner, Professor Chiene, Dr Shuttleworth, Dr Fletcher Beach, and others.

Dr Clouston, in presenting the address, said that Dr Ireland had been one of the most industrious workers in the medical profession, and had been engaged in continual efforts to advance our knowledge. He had taken up as his special work a subject which had not previously been found very attractive in this

[1] This department of the Journal is under the control of the Senior Editor.

country, and it was a fortunate thing for the subject that Dr Ireland had taken it up. By his industry and by his knowledge of what was being done in other countries, Dr Ireland stimulated the interest of other workers, and the special class of patient which he studied now attracted a great deal of interest.

After referring to the value of Dr Ireland's labours in furnishing the profession with digests of foreign literature, Dr Clouston proceeded to read the address which, after referring to Dr Ireland's long records of strenuous work, concluded as follows:—

Above all those merits, your personal character, combining modesty and genial humour, earnestness and truthfulness, have won our respect and affection. We desire most cordially to express to you our wishes for a long and happy life of still further usefulness. We believe that you will always enjoy the happiness of the man who "keeps himself simple, good, sincere, grave, unaffected, a friend to justice, considerate and strenuous in duty."

Dr Ireland, in replying, said that the address referred to the wound he had received during the Mutiny, but perhaps few present knew how bad this wound really was. It was nearly three years before he was able to return home, and ten years before he was able to resume medical work. The subject of his life's work had been chosen because, in the circumstances, it seemed to provide a suitable opening. He thanked his friends present, and would always look on that day as a very important day in his life. He felt stronger to-day than he did forty years ago. He knew he could not recover from old age as he had recovered from his wound, but he would gladly live through his life again, and even through the worst of his misfortunes, for they had taught him something. He could only thank his friends for their kindness and for their friendly and encouraging words.

Dr Yellowlees proposed a vote of thanks to the Committee and especially to Dr John Thomson, the Secretary, and said it was a great pleasure to him and to all present to be associated with the address.

A vote of thanks to the Chairman terminated the proceedings.

"Patet Omnibus."

AT a recent meeting of the Managers of the Royal Infirmary, it was decided not to accept the invitation of the British Medical Association to send a representative to a conference in London, at which certain resolutions bearing on hospital

administration were to be discussed. Some of the Managers regarded a number of the proposed resolutions as inconsistent with the charter and constitution of the Infirmary. Mr J. B. Sutherland, S.S.C., remarked that the inconsistency came in in that the motto, prominently placed over the entrance of the Royal Infirmary of Edinburgh, stated that the institution was "open to all."

There may be room for a difference of opinion as to whether the Managers of the Infirmary acted wisely in declining to send a representative to the conference referred to. It has recently been shown that Scotland has many things to teach the English in the matter of hospital administration. We fear the subject of the prevention of hospital abuse is not one of these. On more than one occasion the noble motto of the Infirmary has been used to shelter an admitted evil. It may therefore, perhaps, be worth while to ask what that motto really means.

Judging by the practice of the institution, "Patet omnibus" certainly does not mean "open to all." If it did, the Infirmary would be a free lodging-house. The phrase must be translated in the light of the purpose for which the Infirmary exists. So translated, it might signify open to all the sick, but daily practice and the exigencies of space demand a narrower interpretation still, and we may construe the phrase as meaning "open to all the sick who require infirmary treatment." Such an interpretation falls far short of the catholic "open to all," yet the Managers have not hesitated to make rules which entirely exclude from any participation in the benefits of the Infirmary many who do urgently need hospital treatment. Certain kinds of infectious disease, for example, are rigidly excluded, and a patient found in the waiting-room to be suffering from typhoid fever or diphtheria, however ill and however poor he might be, would be sent away, plead though he might that the Infirmary professes to be open to all. The charter of the Infirmary and its motto have not kept the Managers from drawing up very stringent rules as to the kinds of disease which may receive treatment. How, then, can they be pleaded in excuse for declining to legislate as to the class of patients entitled to treatment, whether indoor or out?

But what, then, does "Patet omnibus" mean, and for what reason was it chosen as a motto? We presume the real significance of the phrase is that the Infirmary knows no distinction of race or creed. Jew and Greek, Catholic and Protestant, saint and sinner, are alike admitted to the benefits of Edinburgh's noblest charity, and the poor man with nothing but his sickness to plead is received on equal terms with him who brings a letter of recommendation from the richest subscriber.

The Training of Surgeons.

LAST month we had Professor Chiene's views on the training of the young surgeon. This month we publish from the *Monthly Cyclopedia of Medicine* those of Professor Senn of Chicago, whose contribution is headed, "The Training of the Modern Surgeon."

"There is no country in the world where surgery has received more attention than in the United States. This fact becomes very apparent in all of our many medical schools, the transactions of our medical societies, and in the current medical literature. Much of the progress and advancement of surgery during the last quarter of a century is the outcome of the work of a large number of our indefatigable surgeons. It is very apparent everywhere that the American doctors have a special predilection for the mechanical part of the healing art. It is not saying too much when I make the statement that this tendency has grown beyond the limits of normal requirements. The great field of the practice of internal medicine does not appear to offer the same attractions to our young graduates as the operating-room. American medicine is becoming more and more surgical, and this change has not always been for the benefit of patients, nor for the betterment of the science and art of medicine.

"The surgeon is not made in medical colleges. The function of the medical colleges consists in qualifying their students for general practice. The student who, on the day of his graduation, decides to devote himself exclusively to surgical practice, makes a great mistake. The scientific, successful surgeon must be a good physician. He must be thoroughly grounded in the fundamentals of medicine, anatomy, physiology, chemistry, bacteriology, and pathology. These primary studies constitute the foundation upon which scientific surgery rests. Without such a firm foundation surgery is reduced to the level of a menial trade. The elementary branches must be mastered in college. The students who devote their energies and a liberal share of their time to the elementary branches and know how to apply them in practice will experience no difficulty in grasping the teachings of the practical chairs.

"How many physicians and surgeons study the elementary branches after graduation? Very few indeed. They spend their leisure time in keeping pace with the rapid advances of the practical part of their profession; hence the great necessity of giving the elementary branches the importance and attention they deserve on the part of teachers and students. The surgeon must be a good diagnostician, and this he cannot be unless he is a competent physician. I have often been amused and

instructed in looking over the libraries of surgeons. Only too often have I found them made up of books and journals devoted exclusively to surgery. Frequently the only works on internal medicine were the well-worn text-books used in college. This is a great mistake. The moment the surgeon loses interest in general medicine, from that moment he neglects the scientific part of his work and gradually drifts into a routine practice. Surgery should be the outgrowth of a general practice.

"After the young physician has practised general medicine for five or six years and finds that he is in possession of an aptitude for surgery, then is the proper time to lay out his plans for the future. The experience gained during several years of general practice will be invaluable to him in his subsequent surgical career. He is then not as confident as he was immediately after graduation. If he is honest with himself he has discovered defects in his professional education which must be remedied. He is then well prepared to perfect himself for his new career by further laboratory work and clinical instruction. Only too many have been labouring under the wrong impression that all that is necessary is to attend one of our numerous post-graduate schools or visit a famous clinic for the same length of time. This is a great fallacy. The young physician in quest of surgical knowledge must spend one or, still better, two, years in the further study of surgical anatomy and surgical pathology and reap the benefits of clinical instruction not only of one, but of a number of operators with a well-earned reputation. An observing student will soon become familiar with the methods and technique of an operator, and each surgeon has some branch of surgery in which he is more proficient than others. It is no longer necessary to make pilgrimages to foreign countries for post-graduate instruction in surgery. There are many excellent institutions in this country that can furnish the necessary laboratory facilities, and many surgeons whose work has earned for them more than a national reputation. A visit abroad for six months or a year is to be recommended, especially if the student is familiar with the German or French language. A scientific tour through a foreign country without a knowledge of the language is most unprofitable and should not be encouraged.

"To sum up the training of a surgeon: master the elementary branches in college, do general practice for several years, return to laboratory work and surgical anatomy, attend the clinics of different operators, and never cease to be a physician. If this advice is followed, there will be less unnecessary operating done in the future than has been the case in the past."

Hospitals under the X-Rays.

EVERYONE who knows anything of the working of hospitals in this country will share the indignation voiced by the *British Medical Journal* at the article in the March number of the *Grand Magazine*, and the surprise that a firm of the standing of Sir George Newnes should have published such an atrocious libel on hospital physicians and surgeons. Like the editor of the *British Medical Journal*, we can speak from a considerable hospital experience, and we can only say that we have not only not seen, but have never even heard of such treatment as the writer of the article, who professes to be a member of the medical profession, asserts is the common practice. But since we may be regarded as prejudiced witnesses, we quote from an article on the recent visit of French physicians to London in the February number of the *Journal des Maladies Cutanées*:—

"A peculiarity, typical of the English temperament, is the modest discretion shown in the examination of the patients, especially the females; only the parts necessary to be seen are exposed, and the patients undress and dress under cover."

Too Old at 40.

A GOOD deal of notice has been taken in the Press of a cabled summary of a speech of Professor Osler's in which he was reported to have said that a man was too old at forty, and that there was much in a suggestion in one of Anthony Trollope's novels to the effect that on reaching the age of sixty men should retire for a year's contemplation and then be chloroformed. Professor Osler has thought it necessary to cable a denial of the extreme views attributed to him. But that he does hold definite views is clearly shown in the following extract from one of his addresses ("Teacher and Student," "Aequanimitas and other Addresses," H. R. Lewis). "From one who, like themselves, has passed *la crise de quarante ans*, the seniors present will pardon a few plain remarks upon the disadvantages to a school of having too many men of mature, not to say riper, years. Insensibly, in the fifth and sixth decades, there begins to creep over most of us a change, noted physically, among other ways, by the silvering of the hair and that lessening of elasticity which compels a man to open rather than to vault a five-barred gate. It comes to all sooner or later; to some it is only too painfully evident, to others it comes unconsciously with no pace perceived. And with most of us this physical change has its mental equivalent, not necessarily accompanied by loss of the powers of application or of judgment; on the contrary, often the mind grows clearer

and the memory more retentive; but the change is seen in a weakened receptivity and in an inability to adapt oneself to an altered intellectual environment. It is this loss of mental elasticity which makes men over forty so slow to receive new truths. Harvey complained in his day that few men above this critical age seemed able to accept the doctrine of the circulation of the blood, and in our own time it is interesting to note how the theory of the bacterial origin of certain diseases has had, as other truths, to grow to acceptance with the generation in which it was announced. The only safeguard in the teacher against this lamentable condition is to live in, and with the third decade, in company with the younger, more receptive and progressive minds.

"There is no sadder picture than the Professor who has outgrown his usefulness, and, the only one unconscious of the fact, insists, with a praiseworthy zeal, upon the performance of duties for which the circumstances of the time have rendered him unfit. When a man nor wax nor honey can bring home, he should, in the interests of an institution, be dissolved from the hive to give more labourers room, though it is not every teacher who will echo the sentiment—

'Let me not live . . .
After my flame lacks oil, to be the snuff
Of younger spirits whose apprehensive senses
All but new things disdain.'

"As we travel farther from the East, our salvation lies in keeping our faces toward the rising sun, and in letting the fates drag us, like Cacus his oxen, backward into the cave of oblivion."

Recent Literature

CRITICAL SUMMARIES AND ABSTRACTS

INFECTIOUS DISEASES

By C. B. KER, M.D., F.R.C.P.,
Superintendent, Edinburgh City Hospital

Serotherapy of Typhoid Fever.—Chantemesse (*Presse Méd.*, Oct. 26, 1904) reports the results of 3½ years' treatment with his typhoid antitoxin. His preliminary note, published two years ago in the same journal, led us to expect that good results would be obtained by the serum, and this appears to have been the case. Chantemesse has treated 545 cases at the hospital at

the 29th Bastion, and takes as controls the typhoid cases treated by the usual methods in the other Paris hospitals during the same period. He finds the mean mortality of these hospitals works out at 18 per cent. of deaths on a total of 3199 cases. The lowest mortality was at the Saint Antoine, where 249 cases were treated, with a death-rate of only 12 per cent.; the highest was at the Maison Municipale de Santé, with a death-rate of 23 per cent. on a total of 304 treated cases. This mean mortality coincides with the average death-rate of the disease as given by Griesinger and Murchison. In contrast to these figures, the cases treated by Chantemesse give a death-rate of only 4 per cent., a very marked difference. The comparison given by the deaths from perforation shows that, whereas 2.6 per cent. of cases of typhoid die of perforation, Chantemesse only lost 1.6 per cent. However, when one complication like this is considered, it would be desirable for more than 545 cases to be included, as perforation in our experience varies very much in frequency in different outbreaks, and Chantemesse has been unable to discover how many of the control cases in the other hospitals succumbed to this complication. He therefore very wisely limits his conclusions to saying merely that his treatment does not increase the chance of perforation occurring, but probably lessens it. It is interesting to note, moreover, that perforation accounted for no less than one-third of the total mortality of the serum-treated cases, whereas in most statistics it is shown as causing only one-eighth. Chantemesse never observed perforation in cases treated before the seventh day. The action of the serum, he thinks, is chiefly on the spleen, adenoid tissue, and bone marrow, or the tissues associated with the protection of the organism.

In the use of the serum, we are warned to regard it quite differently from diphtheria antitoxin. In typhoid, the worse the patient is, the smaller is the dose to be given. This, of course, is exactly the opposite to what we are accustomed in diphtheria.

It would appear that Chantemesse has proved the value of his serum beyond all question. In the hands of other hospital physicians it has attained the same results, a lowering of the death-rate by three-fourths. In other respects, all the treatment usual in France, such as cold baths, etc., was also given to the cases treated bv Chantemesse. The one distinguishing feature between them and the other hospital-treated cases was the fact that they were given the antitoxin.

Treatment of Typhoid Fever.—Harbin (*Medical Record*, Nov. 12th, 1904) has an interesting paper on the treatment of

typhoid fever, with special reference to therapeutic fasting. Starvation has, of course, frequently been tried, but Harbin makes several very original suggestions, and his article well repays perusal. He considers that the severity of typhoid toxæmia depends on the amount of the gastro-intestinal disturbance. For instance, the worst cases of toxæmia are those in which diarrhœa is present. If this is really the case, his plan of treatment is a very logical one; but many of us have seen very severe cases which showed little or no intestinal disturbance during life, and very little in the way of lesions on the post-mortem table. Harbin very justly points out that the wasting in typhoid fever is quite independent of the amount of food given, and that assimilation is therefore very much interfered with. He considers that anything which increases peristalsis, whether food or aperient medicines, also increases the amount of toxin absorbed. Here, again, it is probable that this is very largely an assumption. On the other hand, his suggestion to starve all sthenic cases is quite a good one. As long as the patient gets water he can live on his own tissues for some time. Harbin suggests from one to three days' absolute starvation; and it is quite propable that most patients, whether sthenic or not, could stand this deprivation reasonably well, when we consider the amount of starvation patients can put up with after a severe hæmorrhage, for instance. The starvation treatment is usually followed by a considerable reduction in temperature; a very natural result, as in most cases of untreated typhoid a considerable proportion of the temperature seems to be due to septic absorption from fermenting undigested matters in the gut. After the period of fasting prescribed, Harbin gives his patients a very restricted diet, chiefly consisting of various meat broths and egg albumen. He is also a firm believer in gelatine as a food, regarding it as lessening nitrogenous waste, and as tending to prevent hæmorrhage. A teaspoonful three or four times a day may be given. It is contra-indicated in severe cases of diarrhœa. Harbin has the courage to absolutely forbid the use of milk, saying justly enough that curds worse than any solid food may be formed. In this we quite agree, but there are various methods of giving milk, and there is no question of its food value in small measured quantities, carefully diluted, and given at regular intervals. Milk standing at the bedside, for the patient to quench his thirst with, is bound to produce severe diarrhœa with curds, but this should never be permitted. As the fever progresses towards a favourable termination, Harbin increases the diet, and is more liberal than some physicians, recognising that inanition is not infrequently responsible for a prolonged temperature. Interesting details are given of a series of cases treated

on these lines, in conjunction with the use of hydrotherapy. In all, 116 cases were treated, with a death-rate of only 3.4 per cent, a result of which anyone would have reason to feel proud.

The Cytoryctes Variolæ.—Guarnieri, in investigating in 1892 the so-called "vaccine bodies" which occur in the deep epithelial cells of the skin in vaccine and smallpox pustules, considered that they had something to do with the causation of the disease; and named them, in reference to the destruction of epithelial cells which he believed they effected, the "Cytoryctes Variolæ." He also made use of the cornea in his inoculation experiments, and was able to study these cell inclusions in the resulting inflammation. His work was afterwards confirmed by Wasielewski, who considered that the vaccine bodies are the only characteristic structures which can be found in the skin and mucous membrane in vaccinia and in variola. They are absent in normal conditions, and also in other pathological conditions of the skin. In spite of these observations, not a few workers held that these bodies were merely products of degeneration. A recent and most valuable research, however, undertaken at Boston under the superintendence of Professor Councilman, has done much to clear up the question of these vaccine bodies, and to prove that they are stages in the life history of a protozoon. The work is reported at length in the *Journal of Medical Research* (Feb. 1904), which contains a series of papers, taking up the whole question of the pathology and etiology of smallpox and vaccinia. The life history and characteristics of the protozoon have been studied by Professor Calkins. He has examined the cell inclusions which have been found, post-mortem, in smallpox by Professor Councilman and Drs Magrath and Brinckerhoff, and has been able to construct the life cycle of a sporozoon. His paper is admirably illustrated, all the stages noticed in the research being clearly shown, and he makes suggestions as to those stages in the supposed cycle which have not yet been demonstrated. The paper on the Anatomy and Histology of Variola by Councilman, Magrath and Brinckerhoff is very interesting. As regards the supposed smallpox parasite, it was found within the specific lesions of the skin and mucous membrane, occurring chiefly in the cells of the rete mucosum. It is, in its younger or cytoplasmic form, present in the protoplasm of the epithelial cells of early lesions, and of such of the older lesions as are extending. In the intra-nuclear form it occurs in lesions which are more advanced. No parasites were observed in lesions in process of repair. The etiology and

pathology of vaccinia are discussed by Tyzzer, who inoculated animals in order to obtain lesions for study at various stages of the process. The inoculations were chiefly made on the cornea of rabbits with vaccine and with variola lymph. Control work was undertaken to prove the lesions of the cornea were specific. Corneas were infected with various pyogenic organisms, were injured by various chemical substances, were inoculated with lymphs known to be inactive, frozen with ethyl chloride, inoculated with diphtheria toxin, and subjected to various forms of irritation, including inoculation with other intracellular parasites. It was found impossible to produce the characteristic corneal reaction by any of these methods of procuring inflammation. Tyzzer concludes that it has been possible to demonstrate certain cell inclusions by his experimental vaccinations, which are peculiar to vaccinia and to variola, the results of inoculation with vaccine and with variolous lymph being identical. He obtained no evidence that these intracellular bodies were the result of degeneration. He believes that the vaccine body is an organism and is the cause of the disease, because, firstly, the bodies consist of a substance resembling protoplasm in structure and which always contain masses having the staining reaction of chromatin ; and, secondly, the bodies show variations in form corresponding to a developmental cycle. They begin as small bodies in the early lesions, increase in size, and then undergo segmentation. Lastly, all other hypotheses are insufficient to account for the presence of these bodies and their development.

Brinckerhoff made observations on the infectiousness of the so-called variola disk, the imbedded crust which is left by the repair of the skin lesion. In three out of five cases he obtained positive results on the cornea of rabbits, using powdered disks for his inoculations. He concluded that the contagion is demonstrable in the variola disk, and he was also able to demonstrate the contagion without any bacterial contamination in the cornea. Cultivations, however, proved unsuccessful. Experiments were also made by him, in conjunction with Magrath, on variola inoculata in the monkey. The observers found that Macacus and Rhesus monkeys are susceptible to variola inoculata, and that the disease pursues a typical course in these animals, the symptoms agreeing with those of variola inoculata, not of variola vera, in man. The lesions contain the cytoryctes variolæ within the epithelial cells of the epidermis. Successful inoculation confers immunity to subsequent inoculations with variolous or vaccine lymph. Variolous virus can be transferred from man to a monkey, from the monkey to the rabbit's cornea through four generations, and when then

inoculated on a monkey can produce a protopustule followed by a general exanthem.

The same observers made an examination of the blood of smallpox patients with a view of ascertaining its infectiousness. They found in the blood bodies diverse in size and somewhat different in structure, both in patients with variola and in inoculated monkeys. Control work, however, showed similar bodies in healthy men and in normal monkeys. Variolous blood inoculated on the rabbit's cornea did not produce a typical keratitis, except when obtained from a hæmorrhagic case when it was possibly contaminated by infectious epithelium.

Records of the numbers and character of leucocytes in smallpox and studies of the hæmolytic power of the blood serum were also made, and form the subject of interesting papers. The clinical features of the epidemic which has been so thoroughly studied are reported by Dr Bancroft. It will be seen, then, that this particular number of the *Journal of Medical Research* (Feb. 1904) is absolutely necessary to any one desiring to make further investigations on the subject. As an account of a thorough scientific research it will take some beating, and few who read it will be disposed to deny that the cytoryctes variolæ stands now upon an assured footing as the causative organism of variola.

Septicæmia due to the Entero-coccus. — Hudelo and Dehérain report two interesting cases of fever of a more or less intermittent type, due to a general infection with the entero-coccus. The first case, a man of twenty, suffered from gastro-intestinal disturbances, diarrhœa, vomiting, rigors, and headache, and was admitted to the hospital as typhoid fever. On admission he had a temperature of over 104°, and tenderness over the spleen. There were no spots, and Widal's reaction was negative. The temperature ran a somewhat irregular typhoid course, broken by recrudescences, each accompanied by an eruption of herpes. The blood was examined and cultures made, and the entero-coccus of Thiercelin was found in pure culture. The suggestion is that, owing to previous predisposing gastric and intestinal troubles, the entero-coccus, normally a saprophyte, obtained entrance into the blood and caused the pyrexia. In the second case, the patient, a woman of fifty, was apparently suffering from an abortive typhoid, and the serum diagnosis was positive. But afterwards she suffered from a remittent fever for several months, accompanied by severe accesses of high temperature, with rigors, sweating, and gastric disturbance. The entero-coccus was on three occasions found in pure culture in the blood. Ultimately the patient recovered. It

is a curious fact that she was admitted only a few days after the discharge of the first patient and occupied the same room and bed. It is therefore possible that contagion may have to be considered in such cases. The reporters suggest that in this case the typhoid fever was the exciting cause of the activity of the entero-coccus.

DISEASES OF CHILDREN

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Diarrhœal Diseases of Infants.—Of late years a good deal of evidence has accumulated that Shiga's bacillus of dysentery is an important etiological factor in many cases of infantile diarrhœa. This has been the subject of a collective investigation by a number of American workers in connection with the Rockefeller Institute for Medical Research, and the results of their labours have been embodied in a monograph edited by Flexner and Holt. In the *Journal of the American Medical Association*, Dec. 24, 1904, in a paper entitled "The bacillus dysenteriæ (Shiga) in relation to the diarrhœal diseases of infants," Holt contributes a clinical study of 237 cases. It seems from these that: (1) The infection with the organism occurs under a variety of conditions, and is seen in breast-fed as well as artificially-fed infants. (2) It occurs (*a*) as an acute primary infection in previously healthy children; (*b*) as a sub-acute infection without previous symptoms; (*c*) coincidently with or as a sequela of other acute diseases; and (*d*) is often seen as a terminal infection in children suffering from marasmus. (3) It occurs as a mild intestinal disorder with few symptoms, with local symptoms of considerable severity, yet with very little fever or prostration, or finally, in its most severe form, with local and constitutional symptoms of great severity. (4) It is not a local disease, but occurs with about equal frequency in New York, Baltimore, Philadelphia, and Boston; its prevalence appears to be as wide as that of the summer diarrhœal diseases generally. The previous diet of the cases was studied in the hope of gaining some information as to the mode of entrance of the organism into the body, but no light was thrown on the matter. That so many attacks as 26 occurred in breast-fed children shows that some vehicle for conveying the infection other than cows' milk must exist. It is not yet possible to state the relative frequency of infection with Shiga's bacillus as com-

pared with other diarrhœal diseases, as most of the investigations were made on selected cases. In one group of consecutive cases, however, the organism was found (though sometimes with great difficulty and in very small numbers) in 62 out of 64 patients. In a group of 32 healthy children under eighteen months, Shiga's bacillus was never detected, and in 24 post-mortems on children dying of diseases other than those of the intestines, the bacteriological examination was negative in 21, and positive in 3 only, all of which, moreover, showed evidence of antecedent diarrhœa or catarrh of the bowel.

Clinical Types of the Disease.—Of the cases studied, 91 were classed as severe—attended by fever, much mucus and generally blood in the stools, and great prostration; 31 were moderately severe—the same local symptoms, but little constitutional disturbance; 63 were mild—the stools containing mucus only, and there being no prostration or fever. Infection with the dysentery bacillus was associated with almost every sort of intestinal disturbance accompanied by diarrhœa, with, however, the notable exception of the severe acute intestinal intoxication called "cholera infantum." Only one case at all approached this, with its violent onset, protracted vomiting, high temperature, frequent serous discharges, prostration, and fatal collapse, but even that one lacked some of these essential features. Infection with *B. dysenteriæ* is associated with the inflammatory form of diarrhœa whether mild or severe, acute or sub-acute in course, primary or secondary, or occurring in institutions during summer as a terminal infection in marasmic infants, exactly as does broncho-pneumonia under similar circumstances in winter. The organism has not, on the other hand, been found in cases of chronic intestinal indigestion in infants and older children, even though mucus is present in the stools in considerable amount. The most characteristic clinical type, and that with which the organism was almost invariably associated, was the acute febrile form with stools containing much mucus and usually streaked with blood. This we may safely regard as a distinct disease, for which the term "Infantile Dysentery" is the only proper application. As to the question of the diet during the attacks, Holt's view is that while milk should be interdicted in severe acute infections, milder cases do better on modified milk than on other substitute foods. In such cases the patient suffers more from intestinal indigestion with rapid loss of weight than from poisoning, and hence should be treated on general principles as in any other form of malnutrition from sub-acute or chronic intestinal indigestion. Infectious though the disease is, the danger of contagion is not great. Ward epidemics may occur, the disease spreading by the contamination of food by those whose hands

are soiled by handling infected napkins. The nurse in charge of these should not, therefore, have at the same time anything to do with the feeding. The paper concludes with an account of the results of the use of antidysenteric serum, which were, on the whole, disappointing. It would, however, be premature to conclude that it is valueless, and further trial in selected suitable cases may in the future give better results.

Lipomatosis as a Stigma of Degeneration (Kisch, *Berliner klin. Woch.*, May 22nd, 1904).—The disease known as universal lipomatosis cannot be regarded as more than a symptom of several different conditions, such as anæmia, plethora, disease or normal involution of the reproductive organs, alterations in metabolism due to alcoholism or syphilis: in particular, it is not rarely a sign of hereditary degeneration. This aspect of the nature of adiposity has scarcely been studied. In a former monograph on adiposity the writer showed that certain cases of obesity in females were associated with the growth of hair on the face, while conversely, in abnormally fat males the beard was scanty or absent. He further pointed out that hereditarily obese children of both sexes not uncommonly showed a degree of giantism, and that in girls precocious menstruation was frequent. This association with masculinity, effeminacy, giantism, and premature sexual development led Kisch to believe that adiposity was a somatic stigma of degeneration, and he has accordingly examined hereditarily obese persons for evidence of other stigmata. In this investigation he carefully distinguishes the different forms of lipomatosis, not only as to their hereditary or acquired nature, but also in hereditary cases, as to whether the condition appears in early life or only later under favouring circumstances. His results are based on 488 cases of extreme lipomatosis, which he divides into four groups:—*Group I. Congenital obesity.* These cases numbered 14 (8 male and 6 female), varying as to age between 9 and 15 years. In all signs of degeneration were present—giantism, deformities of the nose and mouth, or effeminacy. *Group II. Obesity beginning in early infancy.* Of these he had 32 cases, from 16 to 50 years of age (12 male and 20 female), and in most of them stigmata of degeneration were present: in males, scanty beard, ill-developed genitalia, cryptorchidism or mammary hypertrophy; in females, male type of figure, hirsuties, premature menses. Giantism occurred in 5 cases, deformity of the external ear in 9, and malformation of the teeth in 29. *Group III. Obesity beginning in later life.* Among 213 such cases (106 males and 107 females), stigmata of degeneration were found in

only 28, and these, for the most part, were evidences of effeminacy in males. *Group IV. Acquired obesity.* In the remaining 229 cases, which were of this type, and not hereditary, stigmata of degeneration were only thrice found. Kisch also draws attention to the predisposition to diabetes which sufferers from congenital or infantile obesity show. In all such, he believes, diabetes ultimately develops. It is much less frequent, though still common, when hereditary obesity develops later in life, and also in acquired obesity. A further evidence of the degenerative character of obesity is the fact that patients of the first two groups are nearly always sterile.

Associated Movements of the Head and Eyes in Infants (Hamill and Posey, *Amer. Journ. Med. Sci.*, Nov. 1904).—This paper contains a record of two cases of head-nodding and nystagmus, and one of nystagmus alone, in children of 3 years, 7 months, and 11 months respectively. The onset of the movements was noticed in December (twice) and November, *i.e.*, as is common in such cases, in the dark months of winter. The nystagmus is described as lateral, with fairly extensive excursion of both eyes in one case; lateral, with very short excursion of similar extent in each eye in the second case; and lateral, with short excursion, limited to one eye, in the third. No information is given as to whether the nystagmus was convergent or conjugate, and this is a matter for some regret, as convergent clonus has been observed in a considerable number of such cases, and there is reason to believe that convergence is a characteristic of this, and no other form of nystagmus. The etiology of the movements is discussed, rickets being regarded as the chief predisposing factor. The writers agree with Mills that Hadden's view of the pathology throws most light on an obscure subject. Hadden thought that the seizures pointed to instability of motor centres above the nuclei in the spinal cord and fourth ventricle, and therefore attributes the disorder to a functional or other disturbance of the central cortex. The child has acquired certain voluntary or purposive movements of the head and eyeballs, but these have not as yet become thoroughly organised and fixed in the psychomotor areas of the brain, hence a dissolution takes place because of the inability of the strained cortical centres to stand the work to which they have been too early subjected. Hamill and Posey think that the cortical instability is due to the toxic products resulting from the disturbed metabolism of rickets. They divide all forms of associated movements between the head and eyes into four groups:—(1) Physiological. (2) Abnormal simultaneous move-

ments, having the same pathological origin, but independent of each other, as in multiple sclerosis. (3) Compensatory movements, as where the head assumes a vicarious position in extra-ocular palsy. (4) Related, but not compensatory movements—movements which are abnormal and bear a distinct relationship without being dependent on each other. Cases of head-nodding they place in the last group, though possibly they ought to come under the third, and the movements of the head be considered as secondary to and compensatory for those of the eyes.

Infantile Osteomalacia (Berard and Nordmann, *Lyon Médicale*, Dec. 11, 1904).—True osteomalacia is rare in children, the earlier records having confused with this disease cases of rickets, congenital malformations and other conditions. The authors' account of their case (which seems to agree closely with what is known as "late rickets" in this country) is therefore well worthy of repetition. The patient was the seven year old daughter of a syphilitic father; there was no family history of osteomalacia. She walked at ten months, was rather late in getting her teeth, but remained fairly healthy until the fourth year, when the symptoms began with pain in the legs, disinclination to walk and bending of the bones of the limbs. At the age of six there were marked curvatures of the forearms and legs, which were regarded as rachitic, forcibly straightened, and put up in plaster of Paris. When the splints were removed, however, not the slightest attempt at union of the fractured bones had taken place. The condition on examination at this time was as follows:—The child lies very still and complains greatly of pain whenever she is moved. The vault of the skull is not affected; there is no cranio-tabes, and the sutures and fontanelles are closed. The lower jaw is deformed, its alveolar margins being thickened and deflected inwards. The clavicles are much bent and yield readily to pressure under the fingers. The sternum projects; there is a lateral depression on each side of the thorax, the ribs are soft, and show the rickety rosary. There is some scoliosis. The abdominal viscera and pelvic bones are normal. The lower limbs, which are greatly deformed, are kept widely abducted; the epiphyses are enlarged. The knee-jerks are increased; Babinski's sign is absent. The arm bones are also bent and the epiphyses enlarged. The urine contains traces of albumin; the percentage of urea and phosphates is low. Radiograms show that the bones are unduly transparent. Death took place from broncho-pneumonia. The bones were soft, cutting readily, and showing a red, pulpy consistence on section. The epiphyseal cartilages were enlarged, the chondroid zones resembling the appearance in rickets, and

from these chondroid zones hæmorrhagic effusions arose invading the diaphyses. (The microscopical appearance will form the subject of a later communication.) In their commentary on the case the authors point out that, as is usual, the patient was a girl; the limbs were chiefly affected at the outset, as has already been noticed when the disease occurs in children, while in the adult osteomalacia usually first involves the pelvis (in females) or the spine (in males). In cases occurring in early life, the first deformities appear identical with those of rickets, but with this difference, that fractures, which are common, do not consolidate as they do in that disease.

The Nature of Still's Type of Chronic Polyarthritis in Children (*Archives of Pædiatrics*, March 1904).—Edsall believes that this disease is a peculiar, widely spread, chronic tuberculosis of the joints. The disease as a whole, with the joint lesion left out, is, in its general clinical history and characteristics, not at all unlike Sternberg's type of chronic lymphatic tuberculosis. Edsall has arrived at this conviction from a study of a typical case of Still's arthritis, which was under observation for over a year. Suspecting that the condition might be tuberculosis, he applied the tuberculin test, with the result that the temperature rose, the joints became swollen, red and very painful, and the enlarged lymphatic glands became tender. The enlarged glands in the left axilla were excised and examined microscopically, as well as used for inoculating guinea-pigs. The only histological changes noted were slight enlargement of the Malpighian bodies and defective staining of the cell-nuclei. Large numbers of acid-fast bacilli, having the typical appearance of tubercle bacilli, were found; but injections of emulsion of glandular tissue into guinea-pigs were negative. Edsall believes that these were not pseudo-tubercle bacilli, but the true tubercle bacillus, either dead or of low vitality. The patient, he thinks, had generalised tuberculosis of such a low degree of virulence that he was able to kill off large numbers of the bacilli, and finally to control the course of the disease.

OPHTHALMOLOGY

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Senile Ectropium.—The operative treatment of this common affection is the subject of a recent paper by M. A. Terson (*Annales d'Oculist.*, November 1904). Most operators will, we

think, agree that the various operative measures commonly employed to relieve this condition are apt to give disappointing results. Hence many surgeons are reluctant to operate on these cases, and limit their treatment to slitting the canaliculus and the application of emollients and astringents to the everted conjunctiva. Terson claims that his operation, properly carried out, gives a complete and permanent cure. As a preliminary procedure he slits the canaliculus and ensures the patency of the tear passages by probing. The operative procedure which he recommends may be briefly described as follows :—With forceps and curved scissors the projecting conjunctiva is removed in a long strip from one commissure to the other. On the inner side a small piece of conjunctiva is at the same time resected from the region behind the lower canaliculus. The edges of the raw surface are not sutured, and the tarsus is not interfered with. The portion of conjunctiva which should be excised consists only of the swollen projecting part, best seen by pulling the lower lid downwards. It is velvety and rough, and easily differentiated from the conjunctiva of the *cul-de-sac*. It does not involve the lid margin, the outer edge of the excised portion being therefore placed 1 mm. or so from the edge of the lid. The second part of the operation consists in excising a triangular area of skin from the neighbourhood of the outer commissure. The base of the triangle is placed perpendicular to the line of the lid, and the middle point of the base is opposite the external canthus, and 5 or 6 mm. distant from it. After removal of the skin the edges of the raw surface are brought together by sutures. The suturing is begun by uniting the apex of the raw surface to the middle point of the base. The amount of skin excised is made to vary according to the amount of traction required to correct the ectropium.

The conjunctival cicatrix left by this operation is linear, without folds or puckerings, and healing is complete in about eight or ten days. The ectropium, it is to be noted, disappears only as healing of the conjunctiva becomes established.

In certain cases, where the swelling and eversion of the conjunctiva are less prominent, care must be taken that an over-effect is not produced. The base of the triangle may be sloped down and out, instead of being perpendicular. This modification increases the effect of the removal of skin in bracing up the lax lower eye-lid. In some cases the removal of conjunctiva may be done without removal of skin ; and in other cases, where the conjunctival eversion is not pronounced, the removal of skin in the manner indicated may be enough. A general anæsthetic is hardly ever necessary for the performance of the operation.

The operation is specially designed for senile ectropium with

flaccid lids and everted conjunctiva. It is not suitable for other varieties of ectropium. The method of tightening up the lids by the removal of skin from the neighbourhood of the outer canthus recalls the procedure advocated by Szymanowski.

Detachment of the Vitreous.—This subject has been discussed recently by Professor Elschnig of Vienna (*Klin. Monatsbl. für Augenheilkunde*, December 1904). His paper is a criticism of the common belief that in highly myopic eyes separation of the vitreous in the neighbourhood of the posterior staphyloma is very frequently present. This condition has naturally been considered of importance as predisposing to retinal detachment. Arlt had demonstrated the frequency of a fluid vitreous in high myopia, and, taking his cue from Arlt's observations, Iwanoff propounded the idea of separation of the vitreous. His views were strengthened by a paper by Weiss (1885), who found separation of the vitreous in two highly myopic eyes which he had the opportunity of examining. Separation of the vitreous in high myopia is now mentioned in most text-books as a well recognised condition, although apparently no further pathological evidence has been forthcoming to corroborate the findings of these earlier observers. As Professor Elschnig points out, the greatest care must be taken in the preparation of the eyes examined, lest changes due to the reagents employed be interpreted as pathological conditions present during life. The eyes he examined were put for a few hours into 2 per cent. formol, then for eight or ten days into a mixture of Müller's fluid, with one half its volume of 10 per cent. formol, then into Müller's fluid for six or eight weeks. After washing with water an opening was made into the eye above and below, and the state of the vitreous noted. Subsequently the eyes were prepared for microscopic examination.

Professor Elschnig tabulates the results of the examination of 17 myopic eyes (2D to 30D) and of 5 eyes classed as of atypical myopic refraction.

Only in 4 eyes was an apparent separation of the vitreous seen. A more careful examination showed that in these cases remains of the vitreous could be found adherent to the retina over the apparently separated area. A true separation of the vitreous from the retina had therefore not existed even in these cases. In the other cases the vitreous was perfectly normal.

In the 4 eyes mentioned the condition of the vitreous corresponded to the description of fluid vitreous given by Arlt, and not to the description of separation of the vitreous given by Iwanoff.

Elschnig, in passing, describes the normal relations of the limiting membrane of the vitreous to the retina, and especially to the optic nerve head. The limiting membrane is stated to be most evident in the eyes of old people. Over the disc it is always very indistinct or absent, so that the endothelium covering the disc lies in direct contact with the vitreous substance. In discs congenitally abnormal it is not rare to find fine transparent strands passing from the disc into the vitreous substance and being lost in its meshwork.

Elschnig claims to have shown that the assumption of separation of the vitreous at the posterior pole in highly myopic eyes is unfounded. He also thinks that separation of the vitreous when present is of no significance as a factor predisposing to detachment. He points out that in very many cases of detachment there is no evidence of vitreous separation; and further, that in many cases of total shrinking of the vitreous, *e.g.* in cyclitis following injury, detachment of the retina is not found. He quotes an interesting case where a funnel-shaped, complete shrinking and separation of the vitreous gave an ophthalmoscopic picture very closely resembling that of a persistent hyaloid artery.

In the same number of the journal (*Klin. Monatsbl. f. Augenh.*, December 1904) there is a paper by Dr F. Best, Giessen, on the behaviour of the vitreous during ocular movements. Dr Best noted carefully the movements of certain well-marked *muscæ* in his own eye. He considered the opacities to lie in the vitreous not far in front of the retina. The movements of the *muscæ* corresponded with the movements of the vitreous in which they lay.

He calls attention to the fact, observed by Donders and others, that *muscæ* continue to be seen in exactly the same positions for very long periods. Owing to the consistency and attachments of the vitreous, the part of the vitreous nearest the retina must move promptly as the eye moves, while the more central portions will at first lag behind in following an ocular movement; and later, when the eye has come to rest, will continue to move for a very brief period. The vitreous opacities are held by Dr Best to be heavier than the vitreous.

In discussing the vexed question of the ætiology of detachment, Dr Best suggests that in cases where the consistency of the vitreous is unequal in different parts, the ocular movements may produce unequal traction, and thus favour the occurrence of a detachment. In other cases, he thinks the attachment of the retina to the pigment cells may be abnormally weak, and yield readily to slight traction from the vitreous. The cystic degeneration of the anterior portion of the retina, so fre-

quently found in old people, is probably due to vitreous traction.

Pneumococcus Serum in Ulcus Serpens.—The pneumococcus being now universally recognised as the cause of the typical ulcus serpens (hypopyon ulcer), it has followed in the natural course of events that the injection of an anti-pneumococcus serum should be tried as the most scientific means of checking the ulceration. Römer, in 1903, announced that serum prepared by him had been used in a large series of cases with most excellent results. Several observers during the past year have announced results which, if not so striking as those of Römer, have yet been highly satisfactory.

It is therefore disappointing to learn that Dr zur Nedden, Bonn, found the serum treatment of no value in 12 out of 14 typical cases (*Klin. Monatsbl. f. Augenheilk.*, December 1904). The treatment was successful only in 2 mild early cases. These cases were treated by a subcutaneous injection of 10 c.cm. of serum. Improvement showed itself on the second day, and healing was very rapid. In the remaining 12 cases of the series the treatment proved of no value. In 4 of them an injection of 20 c.cm. was given. The ordinary means of treatment—viz., the cautery or the Saemisch' section—had to be used in order to save the eyes. Instillation of the serum into the conjunctival sac proved useless. Subconjunctival injection of the serum was not tried. Bacteriological investigation showed the pneumococci apparently unaffected by the serum treatment.

Zur Nedden is at a loss to understand how the less severe cases, at any rate, did not respond to the serum. In one case a panophthalmitis due to the pneumococci actually developed on the second day after the injection. The most probable cause of the failure, according to his view, seems to lie in the different varieties of pneumococcus. Apparently a serum obtained from one variety may be powerless in checking the growth of another variety. Zur Nedden warns against a too hasty adverse judgment of the treatment. He is of opinion, however, that the treatment can, at the best, be of avail in early cases only. Unfortunately many patients are seen for the first time by the surgeon when a large spreading ulcer with a corresponding hypopyon has already formed.

Perimetry.—In testing a patient's visual acuteness by means of test types, we test the function of the macula lutea. Ex-

perience has shown that the best way to find out whether the periphery of the retina is normal in function is to test the limits of the visual field for small white and coloured objects. In spite of the ease with which charts of the visual field can be taken on a "self-registering" perimeter, no method of subjective examination is more apt to give misleading results. This is specially true of the examination of the colour fields. In a recent paper in the *Archives of Ophthalmology* (American edition, Vol. xxxiii. No. 6), Dr Wolffberg of Breslau discusses some important general questions in regard to perimetry.

Dr Wolffberg lays great stress on the illumination under which the testing of the field is carried out. He found by experiment that in the normal eye the colour limits of the field begin to contract when the illumination is reduced to $\frac{3}{15}$ (diffuse daylight being taken as the standard). As coloured objects, Dr Wolffberg used patches of military cloth 15 mm. in diameter.

The following are among the chief conclusions which Dr Wolffberg has drawn from wide experimental and clinical study:—

1. A field found normal in bright daylight should not suffer the slightest change in limits or continuity when the illumination is reduced. This holds good up to a reduction of illumination under which the fixation object ceases to be visible.

2. For examining the state of the photo-chemical retinal apparatus, blue pigments are best, since in cases of reduced photo-chemical activity blue disappears first when the illumination is reduced, while it is last to be lost in disturbance of the neuroptic apparatus.

3. For examining the neuroptic apparatus, red pigments are best, since the perception of red suffers quickly in cases of reduced excitability of the neuroptic apparatus, while red is recognised better than blue in disturbances of the photo-chemical apparatus.

4. The limits of the colour field can be pronounced as normal in a given case only when the degree of illumination is known.

5. The colour fields contract concentrically as the illumination is reduced, but in normal cases there is no change from the normal sequence, viz., blue, red, green.

In this paper the question of traumatic neurosis is also discussed. The field in daylight resembles that of a normal eye under reduced illumination.

PATHOLOGY

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THE ÆTIOLOGY OF SMALLPOX

FOR the present, interest in the pathological world seems centred on protozoa as a cause of disease. The ætiology of malaria has been so satisfactorily demonstrated, and recent work on the trypanosomes is so promising, that there is little wonder that so much endeavour is being made to find among the protozoa the infective agents in other and hitherto unexplained diseases. Many still cling to the protozoal origin of cancer, and in recent years many competent observers have convinced themselves of the constant presence and ætiological relationship of protozoa in such diseases as smallpox, scarlet fever, etc. The present abstract deals with recent work on variola and vaccinia. In 1892, Guarnieri described in the epithelial cells of the skin in smallpox pustules, and in vaccinia, definite bodies which he regarded as parasites, and which he named cytoryctes variolæ, the name having reference to the supposed capacity of the organism to devour the epithelial cells. He demonstrated the same bodies in the epithelial cells of the cornea of rabbits inoculated with vaccine and variola virus. These "vaccine bodies" have been accepted by the majority of subsequent observers as specific for variola and vaccine, but much controversy has arisen over their true nature. By some they have been supposed to arise from the degenerated remains of ingested leucocytes, red blood corpuscles, and other cells. While these are frequently present, and may sometimes resemble the true vaccine bodies, this explanation does not appeal to the majority of the most competent observers, and for the present two main theories hold the field. According to them the bodies must either be regarded as true parasites or degenerations of the cell protoplasm. In February 1904 there appeared in the *Journal of Medical Research* an important series of papers by Councilman, Calkins, Magrath, Bronckerhoff, Tyzzer, and others, on the pathological and clinical features of variola. Like previous observers, they failed to find any bacteria having a distinct ætiological relationship, though they admit that some bacteria, and particularly streptococci, may have an important rôle in some of the complications of the disease.

It may be briefly stated that these observers definitely commit themselves to the parasitic theory, and Calkins, in a special article, gives a minute description of the whole life cycle

of the parasite, the complexity of which makes it almost unintelligible to all but trained zoologists. It must be admitted that their main conclusions have been adopted by many other workers in the same field of research. Ferguson (*Journal of Pathology and Bacteriology*, Nov. 1904) regards the presence of true parasites in and between the cells as proved.

According to Calkins, the first development of the germ in man is unknown; it probably takes place in the seat of primary infection, forming an organism which reproduces by germs, probably similar to those which he terms "gemmules," in the secondary lesions; the process being known as "multiplicative reproduction." The gemmules are probably carried in the blood to the skin, where the further development takes place. This early part of the development he admits to be purely conjectural. In the skin he holds that the subsequent development can be satisfactorily traced. The gemmules become intracellular (cytoplasmic), amœboid organisms, which give rise to similar gemmules. This process must continue for some time, for in variola the gemmules are distributed to all regions of the skin. Ultimately the germs derived in this way give rise to forms which make their way into the nuclei, and in all probability develop into gametocytes of two types, giving rise to the male and female gametes respectively. Though conjugation has not been demonstrated, he considers that this takes place with the resulting formation of a zygote, which forms a large amœboid intra-nuclear body. Subsequent changes in this through several stages give rise to multitudinous spores, as in the so-called "propagative reproduction of other sporozoa." These spores in turn may affect other nuclei, and by a second generation of spores may affect other cells of the skin, and finally may transmit the disease to new hosts.

In this complicated cycle it must be admitted that the possibility of error in mistaking intermediate stages for simple degenerative changes in the nuclei is by no means inconsiderable, and a recent paper by Ewing, *Journal of Med. Research*, Nov. 1904, emphasises this.

The first really important paper adopting the non-parasitic theory was published by Hückel in 1898. He regarded the lesions in variola as specific in character, as inoculable from animal to animal, and as conferring immunity. As Councilman and his collaborators admit, Hückel's work was carried out "with the utmost detail, and every possible change in the epithelium, brought out by various methods of hardening and staining, was depicted." Hückel held that the "vaccine bodies" represent degenerative changes in the cells and are not parasitic in nature.

One of the most recent papers on the subject, viz., that by Ewing, referred to above, on the whole tends to support Hückel's views. His paper deals specially with the possibility of distinguishing between specific vaccine bodies and other cell changes, and, secondly, with the determination of what differences in morphology exist between vaccine bodies, as occurring in rabbits and man, and those produced in any other animal which may be made to react to vaccine. A preliminary investigation on material from thirty cases of smallpox was inconclusive, owing to the similarity between the vaccine bodies and "extruded nucleoli, fragments of nuclei, and included leucocytes, red blood cells, and other epithelial cells."

Accordingly, a second research was made on artificially produced corneal vaccine bodies in the rabbit, where in forty-eight hours' lesions, at least those possible sources of fallacy could be more easily excluded. In those lesions he considered that the leucocyte ingestion theory, and the origin of the vaccine body from included red blood cells (a view which he formerly held himself), could be satisfactorily and definitely excluded. He was not able to exclude the possibility of a simulation of the vaccine body by extruded nucleoli, though he considers that such extruded nucleoli are quite incapable of simulating the more complex vaccine bodies which he observed. His final conclusion is that the presence of a specific vaccine body in the cytoplasm of the epithelial cells must be held as proved, but he is strongly of opinion that such vaccine bodies are not parasitic in nature, but are the result of degeneration in the cell protoplasm, probably due to some diffusible toxin acting on cells soaked as they are in lymph. His conclusions are based on the following observed points. He claims to have demonstrated in certain of the vaccine bodies at least, an actual and intimate connection between their reticular structure and the cell reticulum. This he holds incompatible with a true parasite. Further, though he does not claim, as does Sikorsky, to have exactly reproduced the appearance of vaccine bodies by the action of diphtheria toxin, he has by this means in the corneal epithelium, produced appearances indistinguishable from some of the stages in the vaccine body, viz., the perinuclear bodies seen in the early and late stages of vaccinia. He holds, too, that all gradations can be demonstrated between the specifically reticulated vaccine bodies and homogeneous acidophile globules which are not specific for vaccinia.

Ewing vaccinated about two dozen frogs in the skin and cornea, and in two instances definite localised lesions in the latter situation were produced; in the skin, one positive result was obtained. In the cornea, perinuclear forms simulating those

seen in corneal vaccinia of the rabbit were observed, but the entire cycle as observed in the rabbit was not seen. In the skin lesions many of the intracellular bodies produced closely simulated those produced in frogs by diphtheria toxin, and others resembled late stages in the true vaccine bodies. Changes in the nuclei were also observed resembling those seen in true variola. To compare the vaccine bodies in different animals, inoculations in the cornea and skin were made in the rabbit, guinea-pig, calf, rat, chicken, mud puppy, and salamander; and speaking generally, the resulting vaccine bodies in the case of the rabbit, guinea-pig, calf, and rat showed a fairly close resemblance to one another and to those observed in man.

With regard to the intra-nuclear forms of the parasites as described by Councilman, Ewing was not able to come to such definite conclusions. He admits that some of the appearances are strongly suggestive of a distinct ring-shaped parasite, but at the same time he considers that they also may be due to degenerative changes, and finds support of his views in the work of Albrecht on degenerating cells. In a study of the nuclear changes in the epithelial cells of the skin and mucous membranes in a considerable number of cases of smallpox, Ewing was unable to demonstrate intra-nuclear forms at all in some of the primary hæmorrhagic cases, and in the mucous membranes in many cases he was quite unable to trace the intra-nuclear cycle as observed in the cutaneous lesions. This, together with the fact that typical intra-nuclear forms even in the skin could only be satisfactorily demonstrated in what were undoubtedly necrosing cells, leads him to still further doubt the parasitic theory. It is an interesting and hitherto unexplained fact that in the case of the lesion in vaccina, no nuclear parasitic forms can be demonstrated. At the same time, Ewing is careful to state that with regard to the intra-nuclear forms, "the present data seem insufficient to warrant positive conclusions either for or against the Protozoon theory." Though he has not been able to arrive at a definite conclusion on the whole subject, his paper forms a most useful contribution, and emphasises the great difficulties of the research and the urgent necessity for further work. In conclusion, one may be permitted the opinion that until a uniform method of fixing and staining the cells in dispute has been agreed on, comparison of the work of different observers must remain a matter of the utmost difficulty.

The Differentiation of the Diphtheria Bacillus from Bacillus Xerosis and the Bacillus Pseudo-Diphtheriæ.—In the same number (Nov. 1904) of the *Journal of Medical Research*

is an important communication on the above subject by Arnold Knapp, M.D., Professor of Ophthalmology, Columbia University, New York. Should his observations be confirmed, we have now an easy method for distinguishing between those three organisms; and as most will allow that under certain conditions they may be morphologically and even culturally identical, the importance of the observation is evident.

The basis of the differential diagnosis is the varying capacity of these organisms to ferment sugars with acid production.

The method of study is based on Dr Hiss's use of serum water as a medium for distinguishing between various organisms. The medium is composed of beef serum, one part; distilled water, three parts; and is practically sugar free. After heating to 100° C. for a short time to destroy the enzymes of the blood, one per cent. additions of the following sugars are made: dextrose, mannite, maltose, lactose, saccharose, and dextrin. Finally, litmus solution (Merck's pure litmus, 5 per cent. sol. in water) is added in the proportion of 1 per cent. The media are tubed and sterilised at 100° C. for ten minutes, on three consecutive days.

The growth of organisms in these media may, according to their physiological peculiarities, be associated with the production of acid, and a consequent reddening and coagulation of the media containing certain of these sugars. Thus, if different sugars are affected, a means of differentiation is furnished.

Though Knapp's observations are limited as yet, the results obtained have been constant. Twenty-seven cultures of diphtheria bacilli, ten cultures of xerosis bacilli, and four of pseudo-diphtheria bacilli were tested.

The following results were obtained after 24-48 hours' growth at 37° C., and the results do not change after many days at the same temperature.

Pseudo-diphtheria bacillus. None of sugars were fermented; the media remained blue.

Diphtheria bacillus. Dextrose, mannite, maltose, and dextrin were fermented with acid production, reddening of the media and coagulation. Saccharose was not fermented.

Xerosis bacillus. Dextrose, mannite, maltose, and saccharose were fermented with a similar acid production, reddening of the media and coagulation. Dextrin was not fermented.

In the growths of the xerosis bacillus a thin scum formed on the surface of the media. This was not seen in the case of the other two organisms.

The conclusions arrived at are that growths in the dextrin and saccharose media are sufficient to differentiate the three organisms. If neither of those media are fermented and

coagulated, then we are dealing with the pseudo-diphtheria bacillus; if saccharose be fermented, it is the xerosis bacillus; and lastly, if dextrin is fermented, it is the true diphtheria bacillus which is present. If the observations be confirmed, their immense importance, especially to Public Health authorities, will be readily recognised.

New Books and New Editions

A Text-Book of Medical Practice for Practitioners and Students. Edited by WILLIAM BAIN, M.D. Durh., M.R.C.P. Lond. Pp. 1011. London: Longmans, Green & Co. 1904. Price 25s. net.

THIS excellent text-book presents two salient features. It contains the contributions of sixteen writers, and as each branch of medicine is dealt with by one who is thoroughly conversant with his subject, the text-book compares most favourably with many other works on the practice of medicine. The second noteworthy feature is the inclusion of articles on Anatomy, Histology, and Physiology prefatory to the consideration of each group of diseases. The knowledge of physiology possessed by many a student reading for his final examination is often very defective, and the inclusion of those special articles is most commendable. The sections on Anatomy are from the pen of Professor Arthur Robinson, those on Physiology are the contribution of Dr T. G. Brodie.

Diseases of the Alimentary System are treated of by Dr Sidney Martin; Internal Parasites by Dr C. O. Hawthorne; the Circulatory System by Dr Wardrop Griffith; Diseases of the Blood and Spleen by Dr A. E. Russel; the Thyroid, Adrenal and Thymus Glands and Gout by the Editor; Diseases of the Respiratory System by Dr Percy Kidd; the Kidneys are dealt with by Dr W. P. Herringham; and the Skin by Dr Arthur Whitfield. Dr Risien Russel writes on Diseases of the Nervous System; Dr Dixon Mann on Metabolic Diseases, Intoxications and Poisons; Dr John Biernacki on Infective Diseases of Temperate Climes; Dr C. W. Daniels on Tropical Diseases; whilst Dr Powell White deals with the Pathology of Tuberculosis, and Dr Rose Bradford with the Inter-relation of Organs in Disease.

The different sections of the work are all good, being carefully written and containing information which is exceptionally accurate and detailed. The work is likely to take a foremost place among the text-books on medicine.

In a work where so much of the writing is admirable, criticism is, necessarily, mainly appreciative. In the section on the Circulatory System, however, we find that the subject of the extra-systole, and its analysis by examination of the venous pulse, is omitted. The reader is therefore not instructed in the fundamental principles of many forms of cardiac irregularity. In view of the fact that instrumental measurement of blood-pressure has now become almost essential in clinical work, references to blood-pressure such as "increased arterial tension" and "raised blood-pressure" must be regarded as somewhat vague. For the estimation of sugar, the only method given is Roberts's fermentation method. Abscess of the tonsil, it is said, "may frequently be ruptured by the finger nail." On page 66, Günzburg is referred to as Gunsberg, and in the index as Günzberg; whilst in the index, Chvostek is spelt Chevostek.

A Text-Book of Clinical Diagnosis by Laboratory Methods. By L. NAPOLEON BOSTON, A.M., M.D., Associate in Medicine and Director of Clinical Laboratories, Medico-Chirurgical College, Philadelphia. Pp. 549, 320 illustrations. Philadelphia: W. B. Saunders & Co. 1904. Price 18s. net.

THE author in the preface states that "This book has emanated from a desire to satisfy the demands made by my pupils, and it has been prepared to meet the present needs of the student and of the general practitioner." After perusal of the volume, one is forced to the conclusion that the demands of the transatlantic student are by no means moderate. The book contains 526 pages of text concerning the most up-to-date methods of clinical laboratory procedure, and should the student but retain a minimum percentage of this, it would carry him triumphant before the most exacting examiner. The general practitioner will find in it many useful methods for examination of the blood, and of the body secretions and excretions, and many original practical hints, which in such examinations make all the difference between success and failure. Not only are detailed descriptions of methods given, but the diagnostic significance of the clinical findings receive special attention, thus greatly adding to their usefulness. More than half the space is devoted to consideration of the blood and urine. The section on the blood begins with tests for the recognition of blood. The study of fresh blood, then of stained and fixed blood, is described. The pathology, bacteriology, and parasitic affections of the blood are treated in a most exhaustive manner. The more recent

methods of examination and staining are described, and copiously illustrated by original drawings.

The coloured plates are excellent in design and execution, and give a very good idea of what would be observed by microscopic examination; especially is this so in the section dealing with parasitic affections, where the life history of the malarial parasite is portrayed in a way which must have entailed the expenditure of much time and patience.

The chapter on Urine is most elaborate. The physical properties are first dealt with, then the chemistry of the urine is gone into very fully. The newer methods for estimation of sugar, albumin, uric acid and purin are considered. The author's method for the detection of albumin is a very good one, and gave satisfactory results in our hands; it is well worth quoting. "1. A pipet is filled for a distance of from one inch to one and one-half inches with urine to be tested. Then this pipet is either carried under a stream of water, and dried by a towel, or all the urine is removed from its surface by a damp towel. 2. This pipet, with its contained urine, is placed near the bottom of a bottle containing pure nitric acid, when the pressure of the index-finger is lessened, and the acid allowed to flow gradually up into the pipet. 3. When the pipet is seen to contain about the same amount of acid and of urine, the finger is again pressed firmly upon the top of the pipet, which is then removed from the bottle and held toward the light on a level with the eye; when, if albumin be present, a distinct white cloud, in the form of a ring, appears at the zone of junction of the urine and the re-agent.

The section devoted to the microscopic study of the urine contains many excellent half-tone plates of urinary sediments. The stomach and fæces next demand attention, and many methods for the examination of the gastric contents described. An alarming list of animal parasites which may be found in the fæces is given.

The chapters on the Sputum, Buccal and Nasal Secretions, Discharges from Ear and Eye, contain useful information. Transudates and Exudates, and Secretions from the Genital Organs are considered. The composition of Semen is described in an exhaustive manner; though it is doubtful if any special practical advantage is to be gained from the knowledge that the spermatozoön of man is smaller than that of the dog, horse, or cat; nevertheless, it demonstrates the minuteness with which the author has made his investigations. He has performed his task admirably, and is to be congratulated on the result.

To the laboratory worker, and to the "house physician"

who has plenty of spare time at his disposal for clinical research, the work can be recommended. It is too voluminous a work, however, to meet with much favour from the busy general practitioner, but will be useful as a book of reference.

Diseases of the Intestines and Peritoneum. By Prof. D. HERMAN NOTHNAGEL. Edited, with additions, by HUMPHREY D. ROLLESTON, M.D. Authorised translation from the German, under the editorial supervision of ALFRED STENGEL, M.D. Philadelphia, New York, London: W. B. Saunders & Company. 1904.

To the student of German the monographs in Prof. Nothnagel's series are familiar, and are valued alike for their completeness and for the ability with which the subject matter is placed before the reader. The present volume will be welcomed by the English reader as placing in his hands a very complete and very reliable monograph on diseases of the intestines and peritoneum. The editor has done his work well, and his additions to the text, which are included within brackets, add value and interest to the work, and bring it up to date. Throughout the text there are copious references to German literature. The student will be grateful to the editor for his copious additions dealing with the views of French and British writers. A bibliography is included at the end of the sections.

The monograph is a thoroughly good work on a very important subject, and can be heartily recommended to the English reader. If at times the views expressed are not in line with the teaching of British and American authorities, as, for instance, on the question of operation in appendicitis, the editorial additions make up for the deficiencies in the text, and place the reader in a position to form his own judgment. Details of criticism would be out of place in considering the monograph. It is a valuable addition to English medical literature, and as such is very welcome.

A Clinical Handbook of Urine Analysis. By CHAS. H. BEDFORD, D.Sc., M.D. Second edition. Edinburgh: Bell & Bradfute. 1904.

Medical Laboratory Methods and Tests. By HERBERT FRENCH, M.A., M.D. London: Baillière, Tyndall & Cox. 1904.

THE Clinical Handbook of Urine Analysis contains the modern methods of examination applicable to the urine in the clinical laboratory.

The author has tried to place the methods before the reader in a brief, simple and convenient form, and has succeeded. The book is a succinct description of the urinary tests at present in use in the hospital side-room. A short section is added on cryoscopy, and the drug tests for estimating the secretory power of the kidneys. A free use of italics and large type makes the book more easy of reference, though it possibly detracts from the appearance of the page. The illustrations are good, and the book should be useful as a handbook of reference in the hospital side-room.

Medical Laboratory Methods and Tests is intended to be a small handbook for the medical laboratory, and deals with the examination of the excreta, the blood, gastric contents, and pathological fluids. The method of placing the subject before the reader is not very clear, and not always accurate. The illustrations are crude, and will not, it is to be feared, prove of any great assistance to the reader.

International Clinics. Vol. III. Fourteenth Series. Pp. 300. London: J. B. Lippincott Company. 1904.

THE special feature of this volume consists in the series of articles on Syphilis. Following the example of a recent number of the *Practitioner*, nearly one-half of the book is devoted to a consideration of the above malady alone. No less than eleven contributors, many of whom bear well-known names, reflect the views of France, England and America on various questions relating to the disease. Thus, Professor Fournier of Paris writes upon the connection between syphilis and suicide. In his own experience he has actually had eighteen cases where suicide was the direct result of syphilis, and has heard of many others. In seven of his cases self-destruction was the outcome of despair on first learning the true nature of their complaint. Accordingly he strongly advocates great caution in breaking the news to patients. Not until the third visit does he now declare the diagnosis.

The same author also contributes a long article on Calomel injections. While admitting that in certain instances this method "effects cures that are simply incredible, cures that do not occur with the usual methods of treatment," Fournier gives it as his opinion that, in the majority of cases, it is no better than any other method. Further, pain was present in fifty per cent. of

his cases, and in some instances this was "unbearable in severity." For this reason he considers the method dangerous, as patients often disappear or do not allow their complaint to be properly treated afterwards. The article seems to be more or less of a reply to Jullien's paper in vol. iv. of the 13th Series of the *Clinics*, 1904, noticed by us in a former number of this Journal (May 1904).

In an article by Gottheil of New York, the intermittent plan of treating syphilis is much extolled. Injections are preferred to inunction, and the insoluble neutral salicylate of mercury has for long been the author's only preparation. It is as effective as any other, and is practically painless.

Fœtal syphilis is discussed by J. W. Ballantyne, and is fully up to the high standard that might be expected from the author of "Antenatal Pathology." The section on the pathogenesis of fœtal syphilis is specially interesting.

One of the most valuable and instructive articles in the volume comes from the pen of Dr Campbell Williams, who takes as his subject "Uncertainty as to Syphilitic Inoculation," and discusses the various appearances that may be assumed by the initial lesion.

We heartily recommend this whole series of monographs alike to the syphiligrapher and to the general practitioner.

Many of the other articles in this volume, not dealing with the subject of syphilis, are of merit, but space does not permit us to refer to them.

A Text-Book of Legal Medicine. By FRANK WINTHROP DRAPER, A.M., M.D. (Harv.), Professor of Legal Medicine in Harvard University, Medical Examiner for the County of Suffolk, Massachusetts, etc. 8vo, pp. 573, illustrated. London and New York: W. B. Saunders & Co. 1905. Price 18s. net.

DR DRAPER has had a very large experience of medico-legal work during the twenty-eight years in which he has acted as medico-legal examiner for the city of Boston, and has thus been able to produce a text-book of a thoroughly useful and practical kind. He deals almost entirely with the legal aspect of medicine, or medical science in its relation to legal cases, and omits the "jurisprudence" portion of this subject as falling rather in the domain of the lawyer. In general, where statutes have to be cited, those of the State of Massachusetts are given, which approximate very closely to those in force in this country,

but the coroner and his inquest are replaced in New England by a "medical examiner," a permanent official. After the introductory chapter the question of evidence is dealt with in a very sensible manner, and then follow sections dealing with the questions of identity of the living and the dead, the determination of age and sex, and so on. In considering the development of the fœtus, the use of a tabular arrangement would have been an advantage. Galton's method of finger-print identification is treated of somewhat briefly, and the Bertillon method is dismissed in two lines. Chapter six begins the portion devoted to sexual matters in their forensic aspect, and impotence and sterility, rape and criminal abortion, are all discussed in a clear, concise and simple manner. Infanticide is dealt with later on.

Chapters twelve, thirteen and fourteen deal with death and the usual post-mortem phenomena. The author considers that the question of premature interment has been very greatly exaggerated, and points out that the practice of embalming, so common among better-class individuals in the States, with its accompanying injections of arsenious acid or corrosive sublimate, must very effectually prevent the possibility of any person being buried alive! Under the signs of death, Icard's fluorescin test is not mentioned.

In the succeeding nine chapters the usual medico-legal forms of death are fully discussed, with many illustrative cases, and call for little special comment; they are all good. The last of these treats of infanticide. Chapter twenty-five gives a tolerably full account of the examination of blood-stains, but the spectroscopic examination is dealt with very cursorily, and rust and fruit stains are not treated of. Succeeding chapters deal with death by electricity, heat, cold, and starvation, and from noxious gases. Dr Draper expressly abstains from treating, in this work, of either toxicology or psychiatry, but there is a good chapter on the general aspect of criminal poisoning, and a very useful one on the physician's legal relations to his patient, which all might study with advantage.

We can heartily recommend this book, especially to medical men in general practice, who may at any time find themselves involved in a case that has assumed medico-legal importance. The style is clear and concise, and the subject is illustrated by a wealth of cases, many of them new. There is a mistake in the numbering of the illustrations, the last one being given as No. 28, while the one before it is No. 32. No fewer than three are marked No. 27, viz., on pp. 352, 388, and 421. Otherwise we find the work remarkably free from error, and the paper and letterpress are excellent.

L'Oeuf Humain et les Premiers Stades de son Développement (The Human Ovum and the Early Stages of its Development). Par J. POTOCKI et A. BRANCA. Pp. viii. + 196, with 7 coloured plates and 100 figures. Paris: G. Steinheil. 1905.

IN this work, for which Professor Pinard writes a commendatory preface, the attempt is made to tell clearly and consecutively through what forms the human ovum passes in the early stages of its development. Now, there can be no doubt that, during the past two decades, a very large quantity of reliable information regarding these early stages has been brought under the notice of the scientific world by such workers as His, Duval, Graf Spee, Leopold and Peters; but the first effect of this increased knowledge has been to show that the human ovum does not behave in the details of its development as does, for instance, that of the rabbit or the chick; and this discovery cannot but postpone the day when it will be possible to write a complete and consecutive account of human embryogenesis and ontogenesis. Specimens of embryos from the early days of development, such as Peters' and Leopold's, may now be more often found and examined, but they must of necessity continue to be comparative rarities; until a long series of them be accumulated it will be impossible to sketch in all the details of the earliest stages of human embryogenesis. As a matter of fact, in the work under review, constant reference is made to comparative embryology. This is well brought out when we look at the illustrations; thus Figs. 3, 8, 10, 12, 14, 18, 23, 33 to 51, 60, 62, 65, 72 to 80, 86 and 99 (40 per cent.) are all taken from animals; the coloured plates are also largely derived from the same sources. These facts in no way diminish our appreciation of the work; they simply show how far off is as yet the possibility of tracing all the steps in the development of the human embryo from specimens of the human embryo. The mode of formation of the amnion, for instance, is unknown as regards the human subject, for it is already present in the earliest known specimen; the same remark applies to the umbilical vesicle and to the villi of the chorion.

With this reservation, we can very heartily commend Potocki and Branca's work as a painstaking and scientific attempt, successful so far as it is not limited by lack of evidence, to give the student an idea of the early epochs of ontogenesis in the human subject. It is intended to serve as an introduction to the study of obstetrics; and, in their order, the authors describe the sexual products (ova and spermatozoa), the genital apparatus, ovulation

and the corpora lutea (now exciting so much interest and speculation), menstruation, fecundation, segmentation, appearance of the blastodermic layers, the embryonic annexa (amnion, umbilical vesicle, allantôis, chorion), placentation and the umbilical cord. On all these subjects the information is reliable and well up to date.

Les Frontières de la Maladie. Par Dr J. HÉRICOURT. Crown 8vo, pp. 285. Paris: Ernest Flammarion. Fr. 3.50.

EVERY physician has frequently to lament that patients under his care have delayed far too long in seeking medical advice, and a large proportion of the beds in our hospitals are occupied by cases in which recovery would have been much more certain, and the period required for treatment much shorter if premonitory symptoms had not been neglected until the patient could go about no longer. On the other hand, it must be admitted that when patients do seek advice at an early period of their illness, even the most experienced physician may be unable to make a correct diagnosis, and treatment may practically amount to little more than watching the development of the symptoms. That "an ounce of prevention is worth a pound of cure," is an old proverb, and upon this text Dr Héricourt has written the present volume. He discusses the minor ailments which precede such diseases as appendicitis, gout, Bright's disease, diabetes, insanity; the attenuated forms of diseases due to micro-organisms, such as tuberculosis, typhoid fever, diphtheria without false membranes, scarlet fever without fever and without eruption; the spread of epidemic diseases, the means by which epidemics become arrested, methods of quarantine and other means of dealing with epidemic disease. Dr Héricourt regards attenuated forms of infectious disease as responsible, in many cases, for serious epidemics. Modern advances in hygiene, and in our knowledge of the causes and nature of disease have done comparatively little to diminish the incidence of illness. We know how to keep a large proportion of diphtheritics from dying, but we have not managed to reduce the number attacked.

In his descriptions of the elementary stages of various maladies, Dr Héricourt will seem to some to be not always sufficiently cautious, but he has written an interesting and suggestive book which will repay perusal.

A Handbook of Surgery. By FREDERICK RICHARDSON GRIFFITH, M.D., Assistant-Surgeon to the New York Policlinik, etc. Pp. 577. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

THE author endeavours to incorporate in a book of very small compass, general surgery and operative surgery, as well as all the special branches, diseases of the eye, ear and throat, and gynecology.

In addition, a chapter each is devoted to bacteriology, pathology, and medical jurisprudence.

The book contains a very large amount of information, but owing to its size, this is given in a most fragmentary manner, and we think the author would have made it more attractive and readable if he had not attempted to compress so much information into small space. In many cases the diseases are not more fully described than in a medical dictionary, long lists of signs and symptoms being given in single words without any attempt at explanation in the form of sentences.

Intended, as it is, as a "working guide to the medical student and general practitioner," it can but compel them to turn to the larger text-books for fuller information, and we think it fails in the object for which it is written.

Containing a large amount of useful material, its value is entirely lost by the author's endeavouring to cram too much into small space, necessarily resulting in a too cursory description of the individual diseases.

Syphilis and Gonorrhea. By C. F. MARSHALL, M.D., F.R.C.S. Eng. Pp. 259. London: Rebman Co., Ltd. 1904. Price 8s.

THE author of this work claims to have given an account of the chief points concerning syphilis and gonorrhea. In this it may be said that he has, on the whole, succeeded. He has also produced a book which is thoroughly up to date. Thus we find under "Syphilis and Marriage," copious extracts from Prince Morrow's recent admirable work; under "Parasyphilis," Ogilvie's remarks at the Madrid Congress are referred to, and During's investigations in Asia Minor are noted. Under "Assurance," Byrom Bramwell's views (1902) are quoted. Full reference is also made to serum treatment and to the recent experimental work upon apes. Further, the writer of this review is indebted

for one or two valuable pieces of information which had hitherto escaped his notice. Useful bibliographies are given after many of the chapters. Having said this much, it must be admitted, on the other hand, that the book has many defects. Of these, a want of proper perspective strikes us as being the most noticeable. We presume, from the size of the book and the nature of its contents, that it is intended mainly, if not entirely, for the use of students. The reader, therefore, when he finds that out of 187 pages upon syphilis, thirty-nine are devoted to parasyphilis and syphilis of the nervous system, and twelve to the history of the disorder in ancient times, becomes suspicious, and fears that other more important parts will be inadequately treated. This he finds to be the case. For example, only a page (and the type is unusually large) is given to the important subject of extragenital chancre. The oral treatment of syphilis (the best method for ordinary cases, according to the author) is dismissed in three short sentences! Again, while the differential diagnosis between syphilis and pityriasis rosea, tylosis, lepra, and other somewhat rare conditions, is discussed at some length, it is not suggested that the patient with secondary symptoms should be warned of the danger of infecting other people, nor that the patient with oral mucous patches should give up smoking. To many it will be a matter of regret that Mr Marshall recommends the symptomatic treatment only of syphilis as "the best in the main."

The author is strongly in favour of the periodical examination of prostitutes, especially in naval ports and garrison towns. "If the State expects the army to protect the country, it is the duty of the State to protect the army against disease of any kind, whether of venereal origin or not."

The index requires revision. Thus, if one looks up "condyloma" one does not find it, whereas "David," "Abraham," "Sara," and other supposed biblical victims of syphilis occur with distressing frequency. The subject of gonorrhea is treated adequately.

Le Ventre. Étude Anatomique et Clinique de la Cavité Abdominale au point de vue du Massage. Dr M. BOURCART, Dr F. CANTRU. 8vo, pp. 302, 134 illustrations. Genève: H. Kündy et Fils.

THERE are two parts. The first is devoted to the external configuration of the abdomen and trunk, the external conformation of the back, the abdominal walls, and exploration of the abdomen by inspection, percussion and palpation.

The second part treats of movable kidney, the anatomy of the region, the causes and treatment. There are numerous illustrations from photographs, and the methods advised for the exploratory palpation of the abdomen are dealt with not only in the text, but also by very full illustrations. In the second part, which deals with movable kidney, the pathological anatomy is carefully discussed, and interesting illustrations from casts show the varied character of the paravertebral fossæ in subjects with loose kidneys when placed in different positions.

In the treatment of this condition, the faulty shape of the paravertebral fossæ is considered, and stress is also laid on the failure of the anterior abdominal wall to maintain the intra-abdominal equilibrium. Exercises are advised to improve the tone of this muscular structure together with the assistance of a bandage of broad elastic webbing, the method of application being fully figured and the results of such stated to be excellent. The book is worth perusal by those interested in the subject.

Elements of General Radio-Therapy. By Dr LEOPOLD FREUND, Vienna. Translated by G. H. LANCASHIRE, M.D., etc., with Notes on Instrumentation by CLARENCE A. WRIGHT. Pp. 526. New York: Rebman Company. Price 21s.

La Radiothérapie. Son applications aux affections cutanées. Par Le Docteur J. BELOT. Pp. 516. Paris: Steinheil. 1904. 15 frs.

X-Rays: Their Employment in Cancer and other Diseases. By RICHARD J. COWEN, L.R.C.S., L.R.C.P. Pp. 129. London: Henry J. Glaisher. Price 2s. 6d.

ONE would have thought that the demand for works on this subject was by now pretty well supplied, but new books continue to appear, so that presumably the demand keeps up.

As the work of a pioneer in X-Ray Therapeutics, Freund's book is specially interesting, and Dr Lancashire has done good work in making it more accessible to English readers. It is characterised throughout by a most commendable and not too common moderation, and an absence of that blind confidence which seems to take possession of so many electro-therapists.

Considerable space is devoted to an introductory description of the elements of electricity, which, though it is not as simple as we are convinced it should be, is nevertheless a considerable advance on the majority of similar descriptions.

Of High Frequency he does not speak enthusiastically, though he has seen it produce distinctly good effects upon ulcers. In Lupus he regards it as no improvement on the older methods. In Alopecia areata and Lupus erythematosus he has not had the remarkable results related by some authors. But he is loud in its praise in Pruritus, in which connection he refers to it as "a new development which has enriched our therapeutic resources, and trusts that in time it may receive the improvement and scientific development which it now so greatly lacks."

His discussion of the X-Rays is of course interesting, extremely fair and sensible. We are rather surprised at the statement that the necessity for protection to the operator is greatly exaggerated. Freund says he works six or seven hours daily and never wears any protective appliances. But in this case the exception does not prove the rule. We certainly consider that no means of protection should be neglected.

He has the general experience of the common diseases, and we are interested to note that in Eczema he sees no reason to abandon the older treatment. The author has taken special interest in the treatment of Hypertrichosis, which, he holds, can be undertaken with safety and with good hope of permanent results. In limited cases, however, he advises electrolysis. In Acne his results differ from those of many American observers, for he has seen only moderate improvement.

The publishers have added to the English edition some notes on instrumentation by Mr Clarence Wright, which seem to be mainly for the purpose of giving fair play to the English manufacturers, for nearly all Freund's illustrations are of apparatus "made in Germany." It certainly adds to the value of the book, and we suppose that in the original edition there did not appear the advertisements of certain British electrical firms. Dr Lancashire in his preface apologises, quite unnecessarily, for his translation. This is exceedingly well done, and one has less than the usual consciousness of reading a translated work.

Monsieur Belot's book is written from the experience of Dr Brocq's clinique. Like Freund's book, it commences with a discussion of theories and the means of producing electricity, and then follows a description of the effects of the Rays upon the tissues and on various organs, and on bacteria. Much use is being made in France of the X-Rays in the treatment of Ringworm, and by a careful system of measurements it is now possible to take full advantage of the treatment. The author makes the curious statement that "in Ringworm the parasite is limited to the hair and therefore epilation cures; in Favus the fungus occupies not only the hair but also the follicle, and therefore epilation alone is not sufficient for a cure." We agree that

other treatment is advisable in Favus, but we do not think many Dermatologists would agree that epilation alone will cure Ringworm.

His experience in Acne is that recovery is not the rule, and recurrences are frequent. He uses the rays in obstinate cases of Eczema, but regards their use in acute ones as "doubtfully legitimate." In Lupus he regards the Rays as theoretically inferior but practically superior to the Light treatment. In Lupus erythematosus he does not consider the Rays give better results than other methods. Scleroderma and Keloid were both greatly improved. In Mycosis fungoides he has obtained the same excellent results which were first demonstrated in Edinburgh several years ago. He treats Rodent Ulcer by combining scraping with the Rays, thereby shortening the duration of treatment. In the treatment of recurrent cancer of the breast he says the treatment is justified, for it certainly delays the progress if it does not cure the disease. He does not appear to recommend the treatment in primary cases; he admits the number of cures or pretended cures is now considerable, but unkindly remarks that most of these come from America and Germany. He misrepresents Dr Allan Jamieson as having claimed the cure of a case of Xeroderma pigmentosum. The case was certainly greatly improved, and it is unfortunate the result has been exaggerated. He does not share Freund's views as to the general utility of the Rays in Hypertrichosis, though he admits that in exceptional cases they may prove of use.

The book contains a number of photographs of cases before and after treatment; that of Mycosis fungoides is valuable, but the good results in Rodent Ulcer are now so universally admitted that it is hardly necessary to illustrate them.

Mr Cowen's book is one which we cannot recommend. It is written by one who approaches all disease from the electrical standpoint, and contains a number of statements of doubtful veracity, such as, "Lupus occurs more frequently in the country than in the town," that all other treatment is useless, and that even slight operations cannot be lightly undertaken in the subjects of Lupus. In reference to general surgery, the author is of opinion that the surgical procedures adopted for the removal of malignant growths are too radical, and argues that the glands should not be removed. On page 60 we are told that "a surgeon who operates in a case of Epithelioma without first employing the X-Rays to limit the growth and destroy any glandular affection which may exist accepts a very grave responsibility." On page 69, referring to Cancer, "it is a very foolish procedure to remove the glands behind it whether they are enlarged or not." On page 113 is described "a far rarer

true parasitic form of Sycosis" associated with the presence of *Pyogenes hyomycites.* We confess our ignorance of this parasite, but the author has had eleven cases of the disease, in seven of which it was demonstrated.

The quotations suffice to show the nature of the work, and it is just such undisciplined enthusiasm for X-Rays treatment which is responsible for the attitude of many of the profession towards it. The book teems with what are euphemistically called printer's errors, but the type and illustrations are quite good.

Light Energy. MARGARET A. CLEAVES. Pp. 827. New York and London: Rebman Co. 1904.

DR MARGARET A. CLEAVES, in her most widely comprehensive volume, offers to readers a work of surpassing interest and of very considerable practical value.

In addition to charm of composition, well-judged method of arrangement and elegance of exposition, she brings to bear upon the subject, as the result of long and careful study, a masterly knowledge of the various branches dealt with, and a keen appreciation of the valuable work done recently in many countries in connection with this most engrossing and far-reaching subject.

Unfortunately, however, we fear that the somewhat appalling size of the volume may deter many medical men from its perusal, but to those more particularly connected with the subject, the book will be found teeming with interest.

An exhaustive review is here impossible, and we merely give an idea of the wide scope of the work when we state that the following subjects are dealt with most fully: the physics of light energy, its various actions on all forms of life, from the lowest and most elementary to the highest, the physiology and therapeutics of sun baths, electric arc baths and incandescent light baths, the Finsen rays, treatment by blue and by red light, the ultra-violet light energy, discharges of vacuum tubes, the N-rays, radium and other radio-active metals, and the phenomenon of fluorescence.

Electricité Médicale. By H. GUILLEMINOT. Pp. 655. Paris: Steinheil. 1905. 10 fr.

AMONG recent text-books on this subject none can be recommended with greater confidence than that of Dr Guilleminot.

Alike to the general practitioner and to the specialist, it should prove of undoubted value in presenting in a compact

form, and with the greatest thoroughness and lucidity, the present knowledge of the facts and theories included in the ever-widening term—Medical Electricity. Wide, indeed, is the subject if one considers that the entire wave motion of the universe is electro-magnetic, and that the method of transfer of energy through space is—as it is universally conceded to be—by means of wave motion through the ether.

According to the wave length we get the phenomena of Langley waves, radiant heat, the luminous waves of the spectrum, N-rays, high-frequency waves, X-rays, etc., and thus, by means of these varying rates of vibration, differing as they do only in direction, rate and frequency, we are enabled to stimulate, excite, control, or soothe the various constituent parts of the human frame.

All these divisions of the subject the author treats most capably, and he also refers to the important subject of animal electrogenesis.

The book is divided into three parts, the first part treating of electrical physics and technique, the second part of the physiology of the various electric currents, and the third of electro-diagnosis and electro-therapeutics. Each one of the three is most complete and thorough, the chapter on X-rays being particularly good, and attention being drawn to the value of stereoscopic X-rays.

In addition, there is at the close an excellent series of plates illustrating various facts in connection with the nervous system, while the index has obviously been compiled with the greatest care.

An Elementary Treatise on the Light Treatment for Nurses. By JAMES H. SEQUEIRA, M.D., M.R.C.P. Lond. Pp. 79. The Scientific Press.

WE really cannot see any necessity for this little book. If the physician in charge of any Light department has not sufficient time to impart the necessary instruction to his nurses, then he should resign in favour of someone who has, for he is not properly discharging his duties.

The publication is just one of the signs of the times, a symptom of that craving for superficial knowledge which we are glad to think does not affect the great majority of nurses, and we are sorry that the author, who is so well known an authority on the subject, has been persuaded to issue a sort of infants' primer on Light Treatment. We assume that it is the Treatise, and not the Light Treatment, which is intended for the Nurses.

First Report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum. By the Director, ANDREW BALFOUR, M.D., B.Sc., M.R.C.P. Edin., D.P.H. Camb.

THE inclusion of a Research Laboratory in the precincts of the Gordon College, Khartoum, is amply justified by this chronicle of the work accomplished during the first year. Named after their generous donor, and under the direction of Dr Andrew Balfour, aided by a small staff, the laboratories fulfil a very composite purpose. Chemical and bacteriological analyses in connection with pathology, with public health, with medical jurisprudence, and with industrial developments, occupy much of the time of the staff. The description of the general routine work of the laboratory is supplemented by a classification of the diseases commonly present in the Sudan. The list is an extensive one, and suggests that there is likely to be no lack of material for laboratory investigation. A large portion of the report deals with mosquito work in Khartoum and the Sudan. This section contains a map showing regional distribution of the *Culicidæ*, and also three plans of Khartoum showing the distribution and breeding-places of mosquitoes before and after treatment of the water collections and in relation to the advent of cool weather. Crude petroleum applied to the wells is reported to be very effectual in destroying the larvæ and pupæ. As a result the town has been largely deprived of its mosquito population, and efforts are being made to prevent re-infection from river steamers, on which mosquitoes often breed. The varieties of mosquitoes most common in Khartoum are the *Culex fatigans*, the *Stegomyia fasciata*, and the *Pyretophorus costalis*. The two former are known as carriers of filariasis and yellow fever respectively, while the last is capable of spreading malaria. Noxious insects other than mosquitoes, such as tse-tse flies and blister beetles, are described, and also certain insects and vegetable parasites injurious to crops. The report includes a valuable paper on the mosquitoes of Egypt, the Sudan and Abyssinia, by Mr F. V. Theobald, mainly based on material collected by Dr Balfour. The specimens sent home included several new species. One of these, *Anopheles Wellcomei*, has been designated, not as a welcome visitant, but in recognition of the donor of the laboratories. Another new species, the *Uranotænia Balfouri*, has been named after its discoverer, the Director of the laboratories.

The whole report reflects great credit on its author and on the Sudan Government. The type is excellent, and the inclusion of rubric and index is very helpful. The illustrations consist of beautiful plates, photographs and diagrams, and form a notable feature of the report. The plates, many of which are

exquisite colour reproductions, show minutely the characters of the various mosquitoes, flies and beetles. The photographs, fitly headed by the Gordon College as a frontispiece, embrace numerous views of pools and other breeding-places of the mosquito tribe. The volume forms an excellent beginning of what will, no doubt, prove a very valuable series of reports.

Meals Medical. By W. T. FERNIE, M.D. 781 pages. Bristol: John Wright & Co. 1905. Price 9s.

AFTER reading the greater part of this tome—it would be a superhuman effort to read it all—one is quite at a loss to know whether it was written seriously or as a skit. It is dedicated to our "Little Marys," which suggests the latter; in the preface it is stated that the motive of the work is to instruct the reader "how to choose meats and drinks which can afford precisely the same remedial elements for effecting cures as medicinal drugs have hitherto been relied on to bring about," and this is more suggestive of the serious aspect; but as above indicated, a reading of the book does not assist the reader out of his initial dilemma. The text consists of an alphabetically arranged series of rambling incoherent articles on food and other kindred subjects; they contain a soupçon of physiology, not always accurate, a multitude of wearisome quotations and stories, and absolutely no pabulum for thought. The original theme, the treatment of disease by diet, does not extend further than the preface.

A Text-Book of Human Physiology. By ALBERT P. BRUBAKER. Pp. 699. London: Rebman, Ltd. 1904. Price 17s. 6d.

IN this handsome volume the author professes to give a selection and presentation of the more important facts of physiology in a form helpful to students and practitioners.

For the most part he has succeeded in his object, but at the same time the volume in some respects seems wanting in information which a student might be required to know, and which a practitioner might expect to find. It is difficult to ascertain the principle that has been followed in the histological part of the work. Some account of the structure of bone and tooth is given, but no mention is made of their development. Again, we find the structure of the thyroid figured and described, while there is no mention of the histology of the suprarenal bodies.

In the section on the pulse there is a brief discussion of the dicrotic wave, but for the rest we are told that "pre- and post-dicrotic waves are not infrequently present."

Bone marrow is not described. The author hesitatingly admits that it may produce erythrocytes, but as a source of

leucocytes it is not mentioned. His remarks on the blood-plates seem unduly dogmatic.

Some of the illustrations are scarcely accurate.

On page 167, the cell station for the submaxillary gland is shown as the anatomical submaxillary ganglion.

On page 174, the tip of the epiglottis is represented as pointing from the œsophagus during deglutition.

In plate i. (taken from Da Costa), neutrophile leucocytes, stained with eosine and methylene blue, are represented without granules, and the statement is made that the granules are lacking with these stains. As a matter of fact, we know of no better method of demonstrating them.

We might also point out that the statement on page 254 that the leucocytes in the splenic vein are 38 times more numerous than in the splenic artery does not accord with the results of recent research.

A large amount of space is taken up by purely anatomical diagrams. The convenience of this arrangement is undoubted; but as similar diagrams are to be found in any good text-book of anatomy, it is a question whether the space they occupy might not be more profitably used.

Although we have called attention to some defects in the book, we have no hesitation in recommending it as a readable, up-to-date and useful account of a subject which is daily becoming more difficult to expound within the limits of a text-book.

The Field Naturalists' Quarterly. Ed. by GERALD R. LEIGHTON, M.D., F.R.S.E. Dec. 1904. Price 2s. 6d.

THE use of the rocking-microtome and other laboratory methods on the one hand, and the introduction of mathematics into the field of biological speculation on the other, have led to the evolution of several highly specialised types of nature-students. Nevertheless, the old-fashioned type of naturalist still survives, and his tastes are catered for by the excellent "Field Naturalists' Quarterly," which has now finished its third year of existence. The present number contains quite a variety of articles. Mr Aflalo discusses the Psychology of the Angler's Fish, Mr Morley contributes an article on Bugs, and Dr Ingram explains the gentle art of feeding snakes through a stomach tube. Miss Wood contributes a paper on the Mistletoe Bough, and, not to mention everything, the Editor supplies two articles—one upon Heredity and one upon Parasitism. The paper is well printed, and deserves the support of all field naturalists.

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THE SCOTTISH
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THE TREATMENT OF MENORRHAGIA AND HÆMOPTYSIS BY INHALATION OF NITRITE OF AMYL[1]

By HORACE C. COLMAN, M.D.,
Broughty Ferry

IN the *Lancet*[2] last year, Dr Hare, of Brisbane, advocated the use of nitrite of amyl to check hæmoptysis, and reported several cases where this treatment had been followed by pronounced success in checking the bleeding in hæmoptysis both from phthisis and from mitral disease, in every case with no ill effect whatever on the patient. He was induced to try the drug for this purpose by the following considerations:—

Hæmorrhage, he says, "depends essentially upon the existence of a certain blood pressure in the bleeding area, and the indication for medical treatment consists in reducing this localised blood pressure. Such we might hope to achieve (1) by promoting vaso-constriction of the arterioles supplying the bleeding area, or (2) by promoting fall of blood pressure through widespread vaso-dilatation in other areas." The first method may be very successful, he says, when the bleeding area is accessible to local treatment by ice, adrenalin, etc., but frequently it is inaccessible, and then to promote localised vaso-constriction we are forced to fall back on remedies whose effects are general. He points out the unsatisfactory results from ergot in anything but uterine hæmorrhage.

Further, he points out that general vaso-constriction will increase the blood pressure in the affected area unless there be compensatory cardiac inhibition, which in its turn might lead

[1] Read before the Forfarshire Medical Association.

[2] "Medical Treatment of Deep-seated Hæmorrhage." Hare, *Lancet*, 1904, ii. 522, 942.

to dangerous cerebral anæmia, and instances the fact that administration of supra-renal extract leads to increase of the number of attacks in epilepsy.

He was therefore induced to try the second method by using inhalations of nitrite of amyl, and argued that this method was applicable to pulmonary hæmorrhage also, the blood pressure in the pulmonary circulation being passively reduced by a fall of pressure in the left auricle, due to diminished resistance in the aortic outflow.

With this line of reasoning I do not think anyone will quarrel. Moreover, Hare's successes were marked, and he reports no failures, so that even if the explanation of its action be faulty, nitrite of amyl is well worthy of trial in hæmoptysis.

Another point urged by Hare in its favour is that the patients seem to suffer much less general disturbance when the hæmorrhage is checked in this way than they do when morphia is used.

He attributes this to the cough being unchecked, and consequently the effused blood is rapidly removed from the chest, and nothing is left in the air passages to decompose.

This was well shown in the case of phthisis recorded below. The patient had had several hæmoptyses previously, the last of which continued for weeks, and was accompanied by serious rise of temperature. This time there was no rise of temperature, and the patient remarked that he had never had so little trouble over a hæmorrhage, and, in fact, had not felt any the worse for it.

In my patient the difference in his condition after the hæmorrhage this time and the last was most noticeable. Last time he was treated with morphia and ice and adrenalin, with little good, if any, and certainly with very marked and bad results to his digestion and general condition, and the hæmorrhage seemed to cease from exhaustion. This time he seemed no worse for the hæmorrhage, and in four days was eating just as he was doing before it began, for I did not hesitate to get him rapidly back to full diet as soon as actual bleeding had ceased.

Dr Hare mentioned in his paper that he had not felt justified in deliberately trying the effect of nitrite of amyl on the menstrual flow, but that accidentally, in the course of treating a case of angina pectoris, he found that inhalation of nitrite

of amyl checked menstruation completely in this patient on several occasions.

This point attracted my attention, as at that time I had a patient suffering from severe menorrhagia, which I had found very difficult to relieve. It seemed to me that a drug which stopped normal menstruation would probably check the excess at least in my patient's case.

The details of the case and the results of the experiment are set out below, and here it may be sufficient to state that the drug was most successful. By means of it the loss of blood was kept well within normal limits after other methods had failed, and the patient's general condition very much improved.

Amyl nitrite must be looked upon as a distinct help in the treatment of inaccessible hæmorrhage. Its utility in hæmoptysis has been proved by Hare in sufficient number of cases to warrant a much more extended use than would appear to be the case at present. In menorrhagia, in the one case now reported, the successful use was undoubted, and further trial in similar cases will, I feel sure, meet the same success.

There can be little doubt that the sudden lowering of the blood pressure is the main factor in the checking of hæmorrhage by inhalation of nitrite of amyl.

This sudden lowering of blood pressure allows clotting to take place in the bleeding area, be it ulcerated lung surface or engorged endometrium. The blood pressure rises again but gradually and so the clots formed are not displaced. In short, the action of nitrite of amyl is a very close imitation of nature's method of checking very severe hæmorrhage—viz., syncope, clotting in the ruptured vessels, gradual rise of blood pressure and return of consciousness, the rise of pressure not rapid enough to expel the clots.

Lastly the inhalation of nitrite of amyl seems to have no bad effects on patients, the headache usually complained of being very transient.

CASE I. Case of hæmoptysis treated with nitrite of amyl.

The patient was an old-standing case of phthisis who had for months been confined to bed in an "open-air room."

In the summer of 1904 he had a severe hæmorrhage from

the lungs lasting over a period of six weeks and bringing him nearly to death's door.

This was the fourth or fifth hæmorrhage in the course of the disease.

Treatment consisted of morphia, ice internally and externally, and adrenalin, and latterly he required brandy in large doses to keep him alive.

Treatment seemed to have little or no effect on the hæmorrhage, which may be said to have stopped of its own accord. The morphia and brandy, both of which were given in large doses, had a very distressing effect on the patient's skin.

He had had for years patches of chronic eczema; these during the period covered by the hæmorrhages spread until the patient might be said to be suffering from general acute eczema. In addition, his digestion was completely upset and there was a considerable amount of fever.

Subsequently, when these troubles were removed, there was very severe cardiac weakness, rapid pulse, and cyanosis and great dilatation.

This again yielded to treatment, and the patient's condition seemed more favourable.

On February 20, 1905, another hæmoptysis occurred, half a sputum cupful to begin with.

For two days I tried morphia and ice with but little effect, except upsetting his digestion.

On the third day, just before my visit, there was a severe hæmorrhage, and I at once administered 3 minims of nitrite of amyl.

The effect was prompt; bleeding ceased then and there, and during the day he coughed up merely black clots. On the next day there was a streak of bright blood in one expectoration and I gave one more inhalation. No more bleeding occurred, and in a day or two all clots disappeared from the sputum.

The patient was delighted, as the only symptoms resulting from the drug were that his pulse ran up to 110 for a few minutes and he had a slight headache. He was speedily put back to full diet, and in a week was as well as before the hæmorrhage. Throughout the period of hæmorrhage and after there was no rise in temperature.

CASE II. Mrs S., aged 56½. Menstruation began at 13; married at 21; pregnancies 17; of these the first 10 resulted in the birth of healthy children, then followed a child born at 7th month, alive and healthy now, then a miscarriage at 4½ months, then a child at 7th month, alive and healthy, then 4 miscarriages at 4½ months, the last 10 years ago.

Except during pregnancy and lactation she never missed a period and menstruation was normal in every way, and for three years after the last miscarriage it continued the same. Seven years ago menstruation, though regular in frequency, began to be of longer duration, a week or more, and the daily amount greater.

About the winter of 1902 the amount became excessive, and the patient did not make up her blood to normal in the intervals.

By the use of ergot in large quantities before and during the periods, the loss was kept within manageable limits, though on one or two occasions I was obliged to give ergotin hypodermically.

Operative interference, and indeed, examination, were not agreeable to the patient, as she always hoped each period was to be the last. Throughout there was no intermenstrual bleeding.

In September 1903, I was able to examine her, and found a somewhat enlarged uterus with a curiously malformed cervix, suggestive of a new growth, but really due to lacerations.

In October following, Professor Kynoch curetted the uterus. The curette brought away little masses of polypus-like tissue, soft and friable, similar in description to what has been called adenoma of the endometrium.

The immediate result was excellent, no menstruation appeared for two months, and I hoped that the menopause was established. Next month, however, there was a little bleeding and each month more, until the state of matters was as before, perhaps a little worse.

Rest in bed, with large doses of ergot, during the seven or eight days of menstruation, and viburnum prunifolium at other times, prevented excessive loss, but the patient was rapidly becoming a chronic invalid.

In May 1904, at the end of a period, the patient rose

and went out for a walk, with the result of a very severe flooding.

During the summer, matters remained the same, but the patient was gradually losing strength and energy.

In November I determined to try the effect of nitrite of amyl. I instructed the patient to go to bed directly menstruation started, and as soon as there was more bleeding than might be expected at a normal period, she was to inhale 3 minims of the drug.

On the second day, as usual, the loss became excessive. The patient did as instructed, with the pleasing result that the excess was at once checked, and in 12 hours menstruation ceased altogether.

In December and January the same process was gone through with similar success, and no ill effects followed the use of nitrite of amyl on any occasion.

The general condition improved greatly and she was no longer anæmic, and she seemed on the way to restoration of her former robust health.

Unfortunately she contracted cystitis, probably from doing a day's washing, and while in bed contracted influenza from a visitor. While laid up by this in February, menstruation occurred, but was scanty in amount, and never sufficient to require anything to check it.

At the present time (March 24), the patient is in much better health than she has been for many months. The cystitis is cured.

The last period ceased entirely to-day. On the 22nd the amount was becoming excessive, and was promptly checked by an inhalation of nitrite of amyl. I think it is permissible to hope that, by means of nitrite of amyl, this patient may be kept in health until the menopause be established, and that no further operative measures will be necessary.

PATHOLOGICAL CONDITIONS OF THE OVARIES AS A POSSIBLE FACTOR IN THE ETIOLOGY OF UTERINE FIBROIDS[1]

By MALCOLM CAMPBELL, M.B., F.R.C.S.

THE nature of the primary etiological factor in the production of uterine fibroids is one of the problems of gynæcological pathology which as yet remain unsolved. That this is so is by no means a result of neglect, for it has received much attention, and various theories have been propounded. Two of these theories are markedly original, and, when put forward, received considerable attention, viz.: the theory of an organismal origin put forward by Galippe and Landouzy (1), in 1887; and the theory, favoured by Recklinghausen (2), Nagel and others, that all uterine myomata arise from some abnormal growth of muscle around remnants of the Wolffian or Müllerian ducts which persist in the uterine wall. As yet, however, no one of the many theories has met with any very general acceptance.

In regard to the definite anatomical position in which the earliest new growths are found, there is much more general agreement.

Pilliet (3), in 1894, advanced the theory that the earliest stage was a perivascular deposit of embryonic cells, due, he stated, to increased activity of the tunica adventitia of the uterine capillaries.

Whether authorities agree or not in regarding the adventitia as the producer of the embryonic cells, there is little doubt that in the case of hard, multiple myo-fibromata, the perivascular theory has been very generally accepted, and has had great support from the careful microscopic examination of early cases.

In view of the importance of the uterine blood supply, let us glance for a moment at its relations. In considering the uterine blood supply much attention has been paid to the tortuosity of the vessels and their other minor details, while but little notice has been taken of the anastomosis of the uterine and ovarian arteries. The ovarian artery, after sending

[1] From the Research Laboratory of the Royal College of Physicians. Read before the Edinburgh Obstetrical Society.

in branches at the hilum, and a branch to the fallopian tube and the round ligament, passes to the uterus as a vessel of considerable size; here it bifurcates, one branch descending to unite with the uterine artery, and the other joining a similar branch from the ovarian of the opposite side. From this utero-ovarian arch branches pass to supply both aspects of the uterus above the level of the cervix. The venous circulation of the ovaries, as found in the pampiniform plexus, communicates freely with the uterine plexus; further, the lymphatics of ovary and uterus have numerous connections.

It seems not without significance to note that the area of the uterus which has this peculiar vascular supply is the area which undergoes the most characteristic hypertrophy during pregnancy, and, further, is the area of selection for fibroid growths, for, although recent statistics have tended to show that cervical fibroids are not so uncommon as was formerly supposed, still, the most liberal estimate puts them down as under 5 per cent. of all fibroids.

So far, the supporters of the perivascular theory have explained the comparative rarity of cervical fibroids on the purely mechanical theory that the growth is less likely to take place where the uterine vessels are free from tortuosity. If, however, we adhere to the perivascular theory, and so far as it goes it has the strongest support, we must surely seek for some explanation of the tumour growth beyond the mere form and course of the vessels. If the growth originates in relation to the blood-vessels, we are justified in at least suspecting that the cause of the growth is to be found in the blood circulating in these vessels.

Starting from this point of view I have carried out a series of observations with the purpose of ascertaining if there were in the ovaries associated with fibroid tumours any constant, or even frequent, departures from the normal structure.

I have examined the ovaries in 20 consecutive cases of uterine fibroids in which hysterectomy was performed. Though consecutive cases, they were "selected," in so far that they were all between the ages of 25 and 45, and may thus be fairly classed as in their reproductive period when the ovary should be discharging its function of ovulation. Of the 20 cases, in 16 both ovaries were removed; in the remaining 4

cases, 1 ovary only was removed. As a control 20 sets of ovaries were examined, which had been obtained post-mortem from patients between the same ages who had died from non-pelvic, and, so far as possible, acute diseases, and in whom the uterus presented no naked eye changes.

The method adopted in the examination of both series was the same. The isolated ovaries were measured in their three diameters, and weighed before being put into any fluid. Any surface, naked eye abnormalities were noted. A longitudinal section was made, passing from hilum to free border; the naked eye characteristics of the surfaces thus exposed were noted. Two sections were then removed from each ovary for microscopic examination. The sections were so cut as to allow of cortex and medulla being examined. Both naked eye and microscopically special care was exercised in noting the presence of mature Graafian follicles or recent corpora lutea.

Without entering into details, the results of the naked eye examination may be briefly stated. The ovaries removed with fibroids were found to be heavier, longer, broader and thicker than the ovaries removed post-mortem.

Both in operative and post-mortem cases the right ovary was found to be greater in all dimensions than the left.

As to gross changes:—

The operative ovaries exhibited various changes in form. In several cases there was marked elongation. In two cases the ovaries were quite spherical. In one case one ovary was completely cystic. Exclusive, however, of such gross changes, the ovaries removed with fibroids exhibited on the surface a much smaller number of ripe Graafian follicles or recent corpora lutea than the ovaries removed post-mortem. Further, the ovaries removed with fibroids were frequently studded with small cystic areas.

When the ovaries were cut from hilum to cortex and the cut surfaces carefully examined, several marked pathological conditions were found.

In one case the ovaries associated with a fibroid were found to be the seat of very well-marked hæmatomata of almost equal sizes in the two ovaries. In another case one of the ovaries was found to be replaced by a mass of necrotic tissue surrounded by a firm fibrous capsule (Fig. 1).

Apart, however, from such gross changes, there were two conditions found in the ovaries removed along with fibroids as contrasted with the ovaries got post-mortem.

Out of the operative series 12 ovaries were found to contain multiple small cystic areas (Fig. 2), while in 11 cases there were, in one or both ovaries, areas of varying size, surrounded by a firm fibrous wall, in which the ovarian tissue was replaced by a white pultaceous substance (Fig. 3).

Microscopic examination showed the walls of these areas to consist of layers of connective tissue, while the contents were myxomatous and almost structureless; at the margins, near the connective tissue walls, there were cellular remains (Fig. 4); in the centre of the area the contents were quite structureless.

In the 40 post-mortem ovaries such cystic or degenerated areas, while not entirely absent, were comparatively rare, and when present were in no case of a size comparable to those got in the operative cases.

An examination of the cut surfaces further confirmed the observation that mature Graafian follicles or recent corpora lutea were rare in the ovaries associated with fibroids as compared with the ovaries got post-mortem.

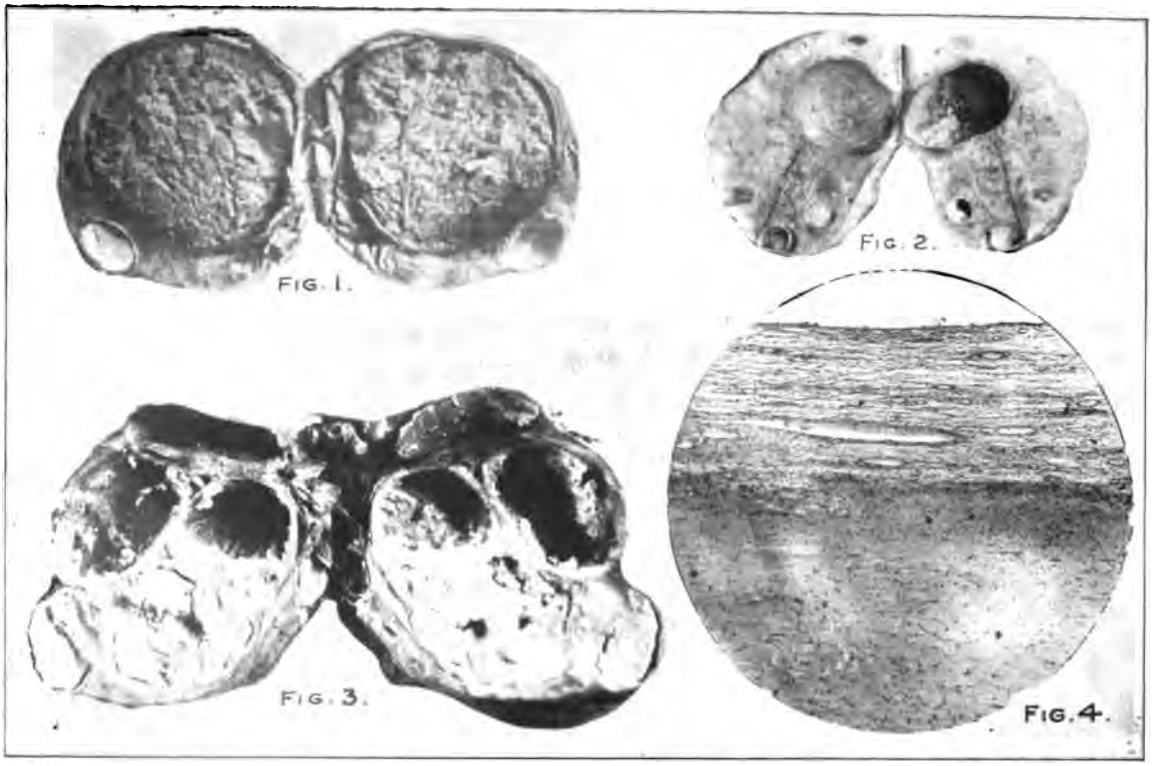
As regards the microscopic examination, all the slides examined went to confirm the above conclusion as to the comparative rarity of mature Graafian follicles or recent corpora lutea in the operative specimens.

In regard to the origin of the areas of degenerated tissue found so frequently in the ovaries associated with fibroids, there can be no doubt that they arose from retrograde changes either in Graafian follicles which had not ruptured, or in corpora lutea.

From the above analysis two points stand out in connection with the ovaries associated with fibroid tumours:—

1. As a rule the normal function of ovulation was in abeyance.
2. There were marked retrograde pathological processes going on in connection with the Graafian follicles and corpora lutea.

From the time of Brown-Séquard the view as to the existence of an internal ovarian secretion has been more and



For description, see Text.

PLATE VIII.—TO ILLUSTRATE DR MALCOLM CAMPBELL'S PAPER.

more widely accepted. Agreement as to its exact chemical constitution may not yet have been arrived at, but its existence is now beyond doubt. Whatever be the nature of this secretion it stimulates oxidation, and its loss between puberty and the menopause leads not only to general nervous symptoms, but also to the failure of normal tissue oxidation as shown by the tendency to adipose deposit in the castrated. The local changes induced by the removal of the ovaries are equally well marked and of more importance in regard to the present question.

Double öophorectomy between puberty and the menopause leads to a diminution in the length and volume both of the uterus and vagina. Further, Buys and Vandervelve in an experimental research on the rabbit, showed that in rabbits on which double öophorectomy had been performed there was not only a well marked atrophy of the uterine muscular tissue, but also a fibrous deposit in the endometrium. Such observations seem to place beyond reasonable doubt the fact that an internal ovarian secretion is necessary to maintain the genital organs in a physiological condition during the reproductive era of a woman's life.

But if an internal ovarian secretion is necessary for the mere maintenance of the normal condition of the uterine muscle, one would expect that during pregnancy there would be some provision for the increase of this secretion in order to aid the hypertrophic changes in the uterine muscle demanded by pregnancy. And this is in reality exactly what takes place, for during pregnancy the function of ovulation is, as a rule, suspended in order that the ovarian energy may not be dissipated on the maturation of Graafian follicles, whose ova, if discharged, would of necessity be wasted, but may be conserved for the production of an increased internal secretion, and for the full development of the true corpus luteum of pregnancy, a structure to which recent observations assign an important function during pregnancy.

Between the ovary of pregnancy and the ovary found associated with fibroids there is thus seen to be a striking parallel.

In both the essential function of the gland—*i.e.* ovulation —is suspended.

In the ovary of pregnancy the energy thus conserved is

expended on the maturation of the physiological corpus luteum, and the production of an internal secretion which, acting on the uterus, leads to the uniform and symmetrical hyperplasia of the muscular tissue of that organ.

In the ovary associated with fibroids the function of ovulation is also suspended, and the corpora lutea, instead of undergoing normal physiological changes, are found to be the seat of pathological changes: hence it seems not improbable that such ovaries may produce a pathological internal secretion, which, by a process analogous to that of the physiological secretion, acts on the body of the uterus in such a manner as to lead to an asymmetrical and irregular hypertrophy of the tissues of the uterine wall.

Both physiological and pathological secretions exhibit a similar selective capacity, in so far as they both act, as a rule, on the tissues of the body as distinct from those of the cervix. They differ, however, in that while the physiological secretion acts most markedly on the muscular tissue, the pathological produces most effect on the connective tissues.

While the changes found in the ovaries associated with fibroid tumours appear so relatively definite and uniform as to justify this preliminary communication, it appears difficult to see how we are to decide whether the ovarian conditions described are prior to, and possibly causative of, the fibroid growth, or are merely secondary changes induced in the ovary as the result of the presence of a uterine fibroid.

The possibility of a pathological internal secretion is a suggestion which appears a legitimate deduction from the facts observed in the present series of cases. Should the theory be supported by the results of a more extended observation, it will offer a logical explanation of the perivascular site of the primary fibroid growth.

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TUBERCULIN AS AN AID TO DIAGNOSIS AND TREATMENT

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WHEN tuberculin was first introduced by Koch over fifteen years ago, it was hailed with enthusiasm by the whole medical profession. But the disappointing therapeutic results, and the sometimes grave consequences which followed its administration, led to a rapid abandonment of its use, and after a comparatively short time it was discarded by the majority of medical men as a useless and dangerous remedy.

But ever since its discovery Prof. Neisser has constantly employed tuberculin in the Breslau University Skin Clinic, and my thanks are due to him and Dr Klingmüller for permission to publish the following account of its use.

Now that one has learned by experience the correct way to use tuberculin, it is found to be of considerable value in the diagnosis and treatment of tuberculous affections of the skin and mucous membranes. The disastrous results which occurred at first on its use in the hands of some observers were not due to faults in the tuberculin itself, but to its use in unsuitable doses and cases.

The tuberculin which is employed in the Breslau Clinic is Koch's original preparation (Old Tuberculin), which consists of a glycerine extract made from pure cultures of tubercle bacilli, which have been killed by heat. The active part of this preparation is the extracellular toxines of the tubercle bacillus. More recently the newer preparation ("T. R."), which contains also the intracellular toxines of the bacilli, has been tried, but found to be not so reliable as the old preparation. The Old Tuberculin, therefore, continues to be used, and the results related below are those got from that preparation.

The effect, as everyone knows, of the injection of tuberculin, is to produce a local and a general reaction. On the presence or absence of these reactions the diagnostic value of tuberculin is based. The local reaction consists in a local acute inflammatory process in the diseased area. The affected part becomes swollen, red, hot and tense. The redness is best seen at the

margin, where it forms a zone extending beyond the edge of the visibly diseased area. The swelling is due to hyperæmia and serous exudation, and is most marked when the diseased area is situated on the lips or in the nose. In some cases the inflammation is more acute, and leads to great exudation on the surface, suppuration and crusting, and in rare cases, to actual necrosis, with the exfoliation of a considerable area of the diseased tissue. This local reaction occurs a few hours after the injection of the tuberculin, and subsides as a rule within thirty-six or forty-eight hours.

The general reaction is less important, as, in man at least, it is not yet proven that tuberculosis exists where a marked general reaction occurs, but if carefully observed, it is often of considerable aid in the diagnosis. Fever is its most common feature, and especially characteristic is the temperature curve in tuberculous patients. A few hours after the injection the temperature begins to rise, and after from six to eight hours shows an abrupt rise of from two to three degrees (centigrade). Eight or ten hours later there occurs a proportionately sudden fall, so that usually after from twenty-four to thirty-six hours the normal is reached again. In some cases a rigor occurs, followed by profuse sweating. Other symptoms frequently occurring are headache, pains in the limbs, vomiting, and general feeling of malaise. Herpes labialis may also occur during the general reaction, but most frequently after it. The so-called tuberculin exanthem is also of not infrequent occurrence, and will be referred to later.

The two reactions, local and general, are usually more or less simultaneous, appearing and disappearing together. But in some cases the local reaction may last considerably longer than the general, and *vice versâ*. The general reaction does not depend on the local inflammatory reaction, as a marked local reaction may occur without a general one, and the symptoms of the general reaction can be removed by antipyretics, without affecting the local reaction. In skin diseases, where the local reaction is visible, of course tuberculin is much more reliable than in diseases of the internal organs, where the more or less vague general symptoms are all that one has to go upon. In a healthy individual the injection of tuberculin may produce a slight general reaction, but if the patient have tuberculosis, this

reaction is much more marked, and at any tuberculous focus a local reaction as a rule occurs. A general reaction may occur without a local one, or a local reaction without a general one. The local reaction, of course, is much more to be relied on as a sign of tuberculosis, because a general reaction may be due to tuberculosis of some internal organ. The amount of reaction differs very much in different cases, and depends on the dose of tuberculin given, the susceptibility of the patient, and the extent of the disease. Another important factor is the frequency of its administration, as after repeated injections a reaction ceases to be produced.

In Neisser's clinic the administration of tuberculin is an every-day occurrence. As a routine practice, every case of tuberculosis or suspected tuberculosis receives it, unless it is otherwise contra-indicated. It is used to assist chiefly in diagnosis, but also in treatment. Before administering tuberculin the precaution must always be taken to see that the lungs are not affected by tuberculosis. If they are affected, then the tuberculin must be given with great caution. If the lung condition is at all marked, it is best not given at all, as, by producing a local reaction in the lung, the acute inflammatory process readily leads to a breaking down of the tuberculous tissue, and a spread of the disease either locally or into the general circulation. This seems to occur more readily in the lung than elsewhere, as the tissues there are soft, and the blood supply rich. Although several hundreds of patients here have received tuberculin, in no case has general tuberculosis resulted. In rare cases after the administration of tuberculin a local spread of the tuberculous focus or the occurrence of new foci at a distance has been observed. But that need not necessarily be due to the tuberculin, as such foci may have been present before, and only have been made visible by the tuberculin; and besides, such a rapid spread of the disease is sometimes seen in cases where no tuberculin has been used. Therefore, if the patient have a suspicious lung condition, the tuberculin must be given cautiously, beginning with a dose of $\frac{1}{1000}$ mgm. This can be increased up to, but not beyond, $\frac{1}{10}$ mgm., as the degree of local reaction depends to a great extent on the dose given. If the lungs be healthy, as a rule one begins by giving $\frac{1}{10}$ mgm. Pure tuberculin is a clear brownish fluid, which keeps

without decomposing. But, if diluted, the processes necessary for its resterilisation after a short time injure its efficiency. Therefore it should only be diluted to the required degree just before use. As each injection is required, the correct quantity of tuberculin is diluted up to 1 c.c. The diluting fluid used is distilled water, to which ·25 per cent. carbolic acid has been added. This is placed in a flask plugged with cotton wool, and sterilised by heat at 130° C. for two hours. It is then used to dilute the tuberculin when required, the diluted tuberculin being put in small sterilised tubes plugged with cotton wool. Tuberculin is given subcutaneously in the back in the interscapular region, the method being the same as in the hypodermic injection of drugs. A $\frac{1}{10}$ mgm. may produce a reaction, but if not, forty-eight hours later a second injection containing $\frac{1}{2}$ mgm. is given. In giving tuberculin for diagnostic purposes, the dose must not be increased too gradually, as a tolerance is produced, and with it a diminished capacity for reaction. If the dose be increased very gradually, one may get no reaction at all even with large doses, whereas if in the same case the dose be increased rapidly, a typical reaction results. But the tolerance of tuberculin does not last long. If the injections be discontinued for a time, on beginning again a reaction occurs just as at first. Therefore for diagnostic purposes one gives tuberculin in increasing doses of $\frac{1}{10}$ mgm., $\frac{1}{2}$ mgm., 1 mgm., 5 mgm., and 10 mgm.—allowing forty-eight hours to elapse between each injection, and, of course, stopping when a reaction is obtained. As a rule, in lupus vulgaris, after the second injection (*i.e.* 1 mgm.) a reaction occurs. If the patient has had tuberculin on a previous occasion, and one knows his susceptibility to it, it may not be necessary to begin with $\frac{1}{10}$ mgm., but one can obtain a reaction at once by giving 1 mgm. Children require relatively smaller doses than adults, so that when dealing with them one usually begins with $\frac{1}{100}$ mgm. In no case is it necessary to go beyond 10 mgm., as, if the case be tuberculous, it will react after such a dose. At the seat of injection one frequently sees a local redness with some swelling. This disappears, but if tuberculin be again injected in a different place a local reaction occurs at the seat of the previous injection. Microscopically the seat of the previous injection has been shown by Klingmüller to contain typical giant-cell tubercle

nodules. Klingmüller has also shown that if the tuberculin be absolutely freed from all trace of the tubercle bacilli, it still produces the same local changes at the seat of injection, and the seat of such an injection reacts to a later injection. These observations show that the local reaction after tuberculin occurs wherever tuberculous changes are present, whether these changes are due to the presence of tubercle bacilli themselves or only their toxines. Cases have also been recorded where the site of a previous injection of tuberculin, after a subsequent injection, became the seat of an abscess or necrosis.

The presence or absence of a local reaction in a diseased area, as a rule, is not very difficult to determine, as the zone of reactionary redness is usually well marked at the margin of the patch. But if there is only a slight reddening of the part, and if at the same time the patient have a well-marked general reaction with fever, because a tuberculous focus is present somewhere else in the body, it is not always easy to decide whether a local reaction is present or not. The local increase of redness of the patch may simply be due to the general hyperæmic condition of the skin consequent on the temperature. In such cases great assistance can be got from the administration of antipyrin, or some such febrifuge, which removes the general symptoms and lowers the temperature.

The extent of the reaction zone is also very important. Klingmüller has shown that the local reaction zone produced by tuberculin is not due to a radiation of the inflammatory hyperæmia around a tuberculous area, but to the actual presence of minute macroscopically-invisible tubercle nodules. These nodules are situated in the reaction zone, where to the naked eye no change is visible, either before the administration of tuberculin or after the reaction has subsided. The nodules are typical tubercle nodules with giant cells, etc. They were present in the reaction zone of all the eighteen cases examined. Tubercle bacilli were not found in any of these nodules. No nodules were ever found in the surrounding non-reacting skin. The limit between the tuberculous change and the healthy skin was found to be fairly abrupt, and although sometimes in the skin bordering on the reaction zone some perivascular infiltration was present, it never showed any cellular changes of a tuberculous nature. The importance of bearing in mind the

true tuberculous nature of the reaction zone is very great from the point of view of treatment. Whatever the treatment employed, it must be applied, not as far as the visible changes, but as far as the reaction zone extends. The presence of such invisible nodules also accounts for the numerous cases of recurrence at the periphery, when to all appearances complete cure had occurred. Other places in the body may also react, with local inflammation and subjective feeling of tension, where no disease was before suspected, and so attention be drawn to such areas. Although in the majority of cases of lupus the diagnosis can be easily made without tuberculin, yet, where the tuberculous process is concealed in the nose, tuberculin is often useful. If one suspects such a condition, or even where it is not suspected, the subjective symptoms of swelling, etc., produced by the local reaction in the nose, lead to a diagnosis.

In other conditions recognised as of a tuberculous origin, tuberculin is also useful. In lichen scrofulosorum the administration of tuberculin, as a rule, is followed by a local reaction in the papules. Each papule becomes red and slightly swollen, so that it stands out more distinctly than before. It is a local reaction in each tuberculous focus. This reaction may occur repeatedly after the use of tuberculin, so long as the lichen scrofulosorum exists.

After the administration of tuberculin a not infrequent occurrence is the production of the so-called tuberculin exanthem. This eruption may show different characters, but, as a rule, has the same characters, if repeated, in the same individual. It may be macular (and then usually scarlatiniform), hæmorrhagic, urticarial or papular. In one case a mixture of these characters may be present. It may be followed by desquamation. The exact cause of such eruptions is not yet definitely determined. Some look upon them as toxic rashes, such as one gets in certain individuals after the administration of certain drugs, but they have never been seen except in tuberculous patients, although many cases with syphilis, lupus erythematosus, etc., have received tuberculin. The most interesting variety of eruption is the papular one. This form exactly resembles in clinical appearances a reacting lichen scrofulosorum. It occurs where, before the administration of tuberculin, no trace of lichen scrofulosorum was to be seen, even on the most minute

inspection. This condition may disappear with the disappearance of the local reaction, and reappear on subsequent injection of tuberculin; but in some cases it persists as a lichen scrofulosorum, or at least as a condition indistinguishable from it, and gets better under general treatment just as lichen scrofulosorum does. Microscopic examination of the skin, where such an eruption has occurred, shows it to contain superficial tubercle-like nodules. The microscopic findings are similar to those found in lichen scrofulosorum. Whether such a condition is a lichen scrofulosorum, which existed before and was only made evident by the tuberculin, or whether it is really produced by the toxines in the tuberculin, cannot be definitely said. Such a case occurred quite recently in the hospital.

F. S. was admitted on January 23 of this year with lupus vulgaris on the left forearm and back and fingers of right hand. There was no trace of lichen scrofulosorum. On January 25. he received $\frac{1}{10}$ mgm. tuberculin. This produced a very slight rise of temperature, but no local reaction. On January 27, he received 1 mgm. tuberculin. This caused a temperature of 38° C, and a marked local reaction in all the diseased areas. At the same time all over the trunk, and slightly also on the arms and thighs, a slightly red papular eruption occurred with a more or less follicular distribution as in lichen scrofulosorum. This faded in about 36 hours, leaving no visible change.

It has also been found that in scrofuloderma a local reaction occurs after tuberculin. In Bazin's disease (erythema induratum scrofulosorum) and all the forms of tuberculide, however, a local reaction sometimes occurs and sometimes not, so that although these diseases are generally recognised as being of a tuberculous nature, in them a reaction after tuberculin is not always to be expected. The following is a brief account of two such cases already published in full by Klingmüller.

C. I. suffered from tuberculosis of the left elbow-joint and of the glands in the neck, which were later operated upon. He had scars apparently from an old tuberculide, a fresh eruption like erythema induratum scrofulosorum, and lichen scrofulosorum. On the gluteal region and extremities the condition was an intermediate one between lichen scrofulosorum and Bazin's disease. On the extensor aspect of the upper extremities and flexor and extensor aspects of the lower extremities were numerous bluish-red areas varying in size from a millet to a pea. These areas were raised, especially the smaller ones,

slightly darker in the middle, and the larger ones somewhat umbilicated. They felt fairly firm. On the back of both feet the spots became confluent, forming an eczematous-looking area which was more red-brown in colour and covered with fine scales. At the edges of these areas isolated scaly bluish-red infiltrated spots were to be seen. After 1 mgm. tuberculin a local reaction occurred in all the areas. A gradual healing occurred with slight atrophy without any treatment. After 18 days 1 mgm. tuberculin was again given with absolutely no reaction, and after 21 days 3 mgm. tuberculin given also without result. A spot of lichen scrofulosorum excised from the breast showed perivascular and perifollicular infiltration, and at one spot perifollicular foci with giant cells. Two guinea-pigs were inoculated intraperitoneally with negative result. Two of the above spots from the calf of the leg were also excised, and one of these showed microscopically at the edge of the spot tuberculous-like foci in the corium, the centre of the foci being degenerated. The other only showed very slight cell accumulations around the vessels. From each piece two guinea-pigs were inoculated with negative result.

G. T., aged 4 years, suffered from tuberculous glands in the neck, scrofuloderma on the arm, tuberculide on forehead, back, and back of hand. He also had lichen scrofulosorum. The forehead showed numerous sharply defined, sunken scar-like areas of atrophy with brown-red pigmented edges. These were somewhat ovoid and about the size of a linseed. On the back were whitish scars somewhat below the skin level, with brown-red edges. Inside this pigmented ring the follicles were conspicuous, corresponding to the lichen scrofulosorum, which was present elsewhere. The back of the left hand also showed two bluish-red, somewhat sunken, roundish foci, which were beginning to show atrophic changes. On October 12, patient received $\frac{1}{10}$ mgm. tuberculin. Next day there occurred a distinct local reaction in all the tuberculides, the scrofuloderma, and the lichen scrofulosorum, besides a scarlatiniform erythema on the body. Even the larger scars on the back reacted distinctly within the ring of pigment where the lichen-like eruption was to be seen.

Other diseases, *e.g.* leprosy, actinomycosis, etc., have been said to give a local and general reaction after tuberculin. The general reaction in such cases cannot be relied on, as it may be due to some internal tuberculosis. But in the above conditions one never gets a typical local reaction, and if any suspicious reaction occurs, the time of its appearance and disappearance does not correspond to that found in tuber-

culosis. But the disease in which tuberculin is especially useful in aiding the diagnosis is syphilis. A tertiary syphilide on the face, the typical situation for lupus, is not infrequently confused with lupus, and it is important to be able to distinguish these doubtful cases at once. If the condition be tuberculous it will react locally, if syphilitic it will not. Of course a patient may have both diseases, and in such a case a marked general reaction may occur because of latent tuberculosis in the internal organs, and this, as already stated, may cause an apparent local reaction. But if the condition is tuberculous, the local reaction is so distinct as to be unmistakable. The following is a case in point.

E. I., aged 45, was admitted on August 24, 1904. On the right gluteal region was a large, almost circular diseased area of about five inches in diameter. The patch was bluish red at the edges, and the surface covered with thick scales and crusts. It had been present for thirteen years, gradually growing to its present size. It was quite dry and somewhat warty in appearance. Over the prominence of the right malar bone was an infiltrated centrally-depressed crusted area about the size of a sixpence. This had been present three months. There was no history of syphilis and no family history of tuberculosis. On August 24, patient received 1 mgm. tuberculin. The temperature rose very slightly. The face showed no reaction and the patch on the gluteal region a doubtful one. On August 25, 3 mgm. tuberculin were given with no local or general reaction resulting. On August 26, 5 mgm. tuberculin were administered. No general reaction resulted and no reaction in the patch on the face, but a doubtful local reaction is recorded as occurring in the patch in the gluteal region. Patient left hospital then, and from the clinical appearances of the two areas and the presence of a doubtful local reaction in the one and no reaction in the other, a diagnosis of probably lupus vulgaris on the buttock and lupus erythematosus of the face was made. On January 10 of this year patient was readmitted. His condition was practically unaltered. On January 12, 1 mgm. tuberculin was given. No general reaction, no reaction in the patch on gluteal region, and a slight doubtful reaction on the spot on the face. On January 15, he received 5 mgm. tuberculin, which produced no reaction, local or general. On January 17, 10 mgm. tuberculin were administered. This caused a temperature of 38.2° C., but no local reaction whatever. As, even with such a large dose as 10 mgm., the local reaction remained absent, a diagnosis of tertiary syphilis was made, and he was put upon pot. iodide internally,

beginning on January 18. From January 25 to February 22, patient also received mercury daily by inunction. Locally, a mercury plaster was applied, and later a salicylic acid and mercury ointment. After this treatment was begun the condition soon showed a marked improvement. The infiltration rapidly diminished, and both the areas began to diminish in size, so that when he left hospital on February 22 the improvement was very marked. Before treatment was begun a piece was excised from the edge of the affected area on buttock, and microscopically it shows widespread end-and peri-arteritis of the vessels of the corium. Near the vessels and towards the epidermis are numerous foci, consisting of small round cells, plasma cells, a few epithelioid cells and relatively numerous giant-cells. The epidermis shows marked proliferation of the papillæ with corresponding changes in the other epidermic layers, parakeratosis, and crusts rich in cells.

This case then shows the advantage of the tuberculin reaction, for the diagnosis was entirely based on the absence of a local reaction, even although clinically the case looked like one of lupus. It also shows very well how reliance is not to be placed on a doubtful reaction. If the reaction is doubtful it is probably not tuberculosis, whereas the reaction in true tuberculosis is unmistakable.

In lupus erythematosus tuberculin has also been largely tried and the experience is that, as a rule, no local reaction occurs. A general reaction may occur, slight as in a healthy individual, or more marked, and then probably due to latent tuberculosis somewhere. In these cases also the general redness of the skin due to the temperature is apt to be taken as a sign of a local reaction. In those cases which look like intermediate forms between lupus vulgaris and lupus erythematosus — the so-called lupus erythematoides—a reaction after tuberculin may occur, but in no typical case of lupus erythematosus has an undoubted local reaction been observed.

In the diagnosis therefore of any case by the aid of tuberculin, the general reaction is not so important as the local. The degree of the general reaction allows of no definite conclusions, as it may frequently depend on tuberculosis of the internal organs. No minimal dose can be fixed below which all non-tuberculous conditions fail to give a general reaction, as the susceptibility varies so much in different individuals. But the local reaction has led to much more definite conclusions,

Fig. 1.—Before Treatment.

Fig. 2.—After thirteen months' Treatment.

PLATE IX.—TO ILLUSTRATE DR R. C. LOW'S PAPER.

and Neisser now asserts that "whenever after tuberculin a typical local reaction occurs, the condition is tuberculous; and whenever, in spite of the administration of suitable doses, it is absent, the condition is non-tuberculous."

Tuberculin as a therapeutic agent unfortunately cannot be said to be so successful as it is in diagnosis. But nevertheless, if properly used, considerable benefit may be gained from it. It cannot be said to be a direct healing agent. In a few cases, if a very strong local reaction be produced, the breaking down and casting off of the tuberculous tissue results in a permanent cure. But that is rare, as in the majority of such cases a recurrence occurs in the surrounding parts. But by making suitable use of tuberculin one can produce marked improvement in lupus vulgaris. The effect of its repeated administration is to cause a removal of the infiltration and thickening. This is especially useful in lupus affecting the lips and mucous membranes. By removing the thickening of these parts their flexibility, which was impaired before, is restored, and thus eating and speaking rendered much easier for the patient. In lupus of the nose the swelling may be greatly diminished, and so the patient made much more comfortable. When tuberculin is given for treatment, it must be given in an entirely different way from when it is used for diagnostic purposes. One begins with small doses, say $\frac{1}{10}$ mgm., and only increases the dose very gradually. It is not necessary to produce a local reaction; in fact, a strong local reaction is to be avoided. One aims at giving just enough to produce a therapeutic effect, at the same time causing only a very slight or no local reaction. The dose must be the smallest possible which will produce the desired result. Of course, as a tolerance is established one must very gradually increase the dose. A pause is made between the injections till the symptoms of the previous injection have completely disappeared. The following is a case treated only by tuberculin:—

L. K., aged 15, was admitted on February 12, 1904, suffering from extensive lupus of the face. The disease affected both cheeks, the nose, upper and lower lips, the chin and adjacent submaxillary regions. The nose was almost completely destroyed. There was also a small patch just below left eyebrow. The case was one of typical lupus vulgaris with considerable crusting. (See Plate.)

Date.	Dose of Tuberculin.	Local Reaction.	General Reaction and Temperature.
1904. Feb. 15	$\frac{1}{10}$ mgm.	slight	none
„ 17	$\frac{1}{4}$ „	distinct	none
„ 21	$\frac{1}{4}$ „	slight	none
„ 25	$\frac{1}{3}$ „	marked	distinct 39° C.
March 3	$\frac{1}{3}$ „	none	distinct 38.9°C.
„ 9	$\frac{1}{2}$ „	none	slight
April 7	1 „	„	slight 37.9° C.
„ 12	1 „ Bov. T.	„	none
„ 20	1 mgm.	„	slight 37.9° C.
„ 27	1 „	„	distinct 38.9°C.
May 8	1.5 „	„	slight 37.8° C.
„ 24	2 „	„	„ 38.4° C.
„ 31	2 „	„	„ 37.8° C.
June 6	2 „	„	none
„ 13	3 „	„	slight 37.6° C.
„ 20	4 „	„	„ 37.9° C.
July 1	6 „	„	„ 38.2° C.
„ 13	6 „	„	„ 37.8° C.
„ 19	6 „	„	none
„ 26	6 „	„	slight 37.5° C.
Aug. 2	6 „	„	none
„ 11	6 „	„	slight 37.8° C.
„ 18	1 „ Bov. T.	„	none
„ 23	3 „ „	„	none
„ 24	6 „ „	„	slight 38.3° C.
„ 29	6 mgm.	„	„ 38.4° C.
Sept. 23	6 „	slight	„ 38.5° C.
„ 26	6 „	„	„ 37.8° C.
Oct. 2	6 „	slight at R. edge	„ 38.5° C.
„ 7	6 „	indistinct	„ 38° C.
„ 14	6 „	none	„ 38.3° C.
„ 18	6 „	„	„ 38° C.
„ 24	6 „	slight at R. edge	none
Nov. 6	7 „	„	slight 37.3° C.
„ 13	7 „	none	none
„ 17	10 „	slight	slight 37.4° C.
1905. Feb. 21	3 „	none	none
„ 23	3 „	„	slight 37.4° C.
March 2	5 „	slight	„ 37.5° C.
„ 7	5 „	none	none
„ 15	5 „	„	none

As is seen, the patient, who is still under treatment, up till now has received in all 158.7 mgm. tuberculin. Besides the tuberculin the patient received pot. iodide internally for four weeks in April. The local treatment has been only boric acid vaseline. Now the lupus shows very great improvement. The healing has taken place especially in the centre and there has been no spread of the disease. (See photograph.) This case shows very well the way in which the dose should be gradually increased, the result of each injection being carefully watched. Another point worthy of notice is the condition of the patient's back where the injections have been made. On each side of the spinal column in the interscapular region is a roundish hard swelling. Between the times of injection, the skin over these tumours looks normal although somewhat adherent. But on each fresh injection made at a slightly lower level, these tumours increase in size and the skin over them shows a marked localised hyperæmia. The general condition of the patient is also much improved.

Of course, other treatment, *e.g.* Röntgen rays, Finsen, etc., may be employed at the same time as the tuberculin is being given, and so a more thorough result be produced.

The local tuberculin reaction, as already mentioned, shows by the reaction zone the exact extent of the disease which has to be treated. It may also bring out spots which were invisible before, and so treatment can be directed to these areas. But its most important use is to determine, after a case of lupus has been under treatment for a time, how far the treatment has been successful. It shows the areas in which the disease is not yet cured and to which treatment must specially be directed. A positive local reaction may be taken as absolute proof that the disease is not cured, but the absence of a reaction does not prove absolutely that it is cured. In long-standing, partially cicatrised foci a local reaction does not readily occur. Schimmelbusch reports a case where a cicatrised lupus became red and crusted after tuberculin, and when the crusts later were removed the area looked and felt like a quite healthy scar. Yet on microscopic examination he found still active-looking tubercle nodules. Therefore, before a case of lupus is pronounced as cured, tuberculin should be given, and if a local reaction occur, further treatment should be directed to the reacting area and persisted in till it ceases to give a reaction.

In lichen scrofulosorum, tuberculin is capable of causing a complete cure, the condition disappearing completely after one or more local reactions. Tuberculide usually also shows marked improvement under the use of tuberculin. Tuberculin has also been tried in the treatment of lupus erythematosus, but, as is to be expected, with no success.

The treatment of Bazin's disease by tuberculin has not yet been tried.

Clinical Records

NOTES OF TWO CASES OF PNEUMONIA COMPLICATING LABOUR AND THE PUERPERIUM

By ROBERT JARDINE, M.D.,

Professor of Midwifery in St Mungo's College; Senior Physician to the Glasgow Maternity Hospital

CASE I. Mrs G., i-para, æt. 20 years, was admitted to the Glasgow Maternity Hospital on September 11, 1904, in the first stage of labour. On palpation of the abdomen the child was found to be lying in the first vertex position, but the head was free above the brim. The pelvis was not contracted. The os was the size of a sixpence. The fœtal heart was audible. The temperature was 101° F., and the pulse 118. Tubular breathing with moist râles was heard at the left base. The pains were not of a satisfactory character, so ¼ gr. morphia suppository was given. The patient rested fairly well during the night, but did not sleep much. In the morning the temperature was 99° F., and the pulse 112. The os was very little more dilated.

During the day the pains became stronger, but the head did not enter the brim. The resident noticed that he could shove it into the brim, but it would not fix there. The general condition of the patient became worse, and at 5.30 P.M. the temperature rapidly rose to 104°.6 F., and the pulse to 144. I had advised the resident to deliver if the temperature rose, and he did so by finishing the dilatation and applying forceps. The child was born dead. The cord was twice round the neck and once round the shoulders, leaving only 7 inches available. There was some laceration of the vagina, which was stitched

and plugged, as there was pretty severe hæmorrhage. Immediately after the patient came out of the chloroform she collapsed, and seemed to be at the point of death. Strychnine and brandy were freely administered. When I reached the hospital, I found her in a very critical condition, and at once had an intravenous saline transfusion of two pints given. She rallied after that. I was quite convinced that the shock of delivery was not enough to account for the great collapse, and gave the opinion that we would probably find the lung consolidated in a day or so.

Next day her temperatue was 104° F., and the left lung began to show dulness. This quickly spread until the whole lung was involved, and in a few days the base of the right one was also involved, and the dulness spread until the lower half was consolidated. The temperature kept about 104° F., with only slight morning remissions. Delirium came on on the evening of the third day. The sputum was very rusty at first, but became nearly black. It was not fœtid. Two days after delivery the right parotid gland became swollen. No fluctuation could be detected in it, and in a couple of days the swelling began to subside. The uterine condition remained satisfactory.

The patient died on the eighth day about the time when the crisis should have occurred.

Apart from the pneumonia the acquired shortness of the cord was a very interesting feature of the case. This explained why the head would not enter the brim. Dr Shannon, the resident, had noted the fact that the head could be pushed into the brim, but that it would not remain fixed. There was no evidence of dragging on the anterior uterine wall, so the placenta must have been attached to the posterior wall. I think the labour was seriously delayed by this condition. The child was practically moored by the shortened cord, and could not advance.

CASE II. Mrs M'G., viii-para, æt. 38 years, was admitted to the Maternity Hospital on September 23, 1904, in labour. Two days before admission she had been seized with severe pain in the left side, and had become feverish.

On admission the temperature was 103° F., the face was flushed, the cough annoying, and the sputum rusty and tenaceous. At the base of the left lung the movements were restricted, there was dulness, and on auscultation there was distinct friction half way up the lung with tubular breathing and crepitations. Twenty-four hours after admission the labour terminated by the birth of a live mature child. The temperature was 103° F. at the time.

The pneumonia ran an ordinary course. The whole of the

left lung became involved, and there was considerable effusion at the base. Râles could be heard in the right one, but there was no consolidation. There was marked herpes of the lips and nose. The temperature fell on the eighth day, and the lung condition quickly resolved. The uterine involution was slow but satisfactory.

NOTES ON A CASE OF CEREBELLAR ABSCESS FOLLOWING ON PUNCTURED WOUND OF SKULL—OPERATION—RECOVERY

By A. HUME GRIFFITH, M.D.,
Nablûs, Palestine

THE following case may be of some interest, especially as the diagnosis was rendered more difficult by the patient being the "host" of innumerable round-worms (*Ascaris lumbricoides*).

History.—The patient (Jameel), a boy aged seven, was brought to the C.M.S. Hospital, Nablûs, Palestine, on the 30th of August 1904, by his mother. She said that, fourteen days before, he had been playing with his brother, and the latter had in fun thrown an iron skewer (used commonly in Palestine to string lumps of meat on), which struck him on the head a little below and to the right of the occiput. The skewer made a slight wound but fell to the ground, and the child cried for a little while and then resumed playing. A few days later the mother noticed that the child grew listless, complained of pain in his head, and seemed unable to walk. He ceased to care for his food and vomited frequently; so, after waiting a fortnight, she decided to bring him to the hospital. On examination, a small suppurating scalp wound was found about an inch to the right and below the occiput; this being enlarged, and the wound being carefully examined digitally and with a probe, no fracture of the skull could be discovered. During examination the child vomited two long round-worms. The patient seem dazed, pupils were enlarged, more especially the right, and he staggered on attempting to walk. The patellar reflexes were very sluggish, organic reflexes normal; pulse 58; temperature 98°.4 F.

He was admitted as in-patient to the hospital.

September 10th.—Since admission, the patient has steadily grown worse. Santonin was administered, and the child passed "dozens" of round-worms. The temperature remains normal, the pulse-rate varying 58-68-80-96-102-96-96-88-68. The patient sometimes complains of severe pain in the head, but usually lies in his cot in a drowsy condition. The right pupil

is widely dilated, patellar reflexes have vanished, and there is some incontinence of urine and loss of rectal control. Considering the evident serious condition of the child, it was resolved to operate immediately. Under chloroform I made a horse-shoe shaped incision—with the base downwards—over site of injury, cutting down to the bone and reflecting the whole flap. Hardly had the hæmorrhage (which was profuse) been controlled when the child stopped breathing, and my colleague (Dr Gaskoin Wright) and I had to, in turn, perform artificial respiration for half an hour before the breathing became again regular. It was noticed that during the whole of this time the pulse-beat was regular in time and rhythm. The operation was abandoned, as it was inadvisable to run the risk of the child dying on the operation table.[1] However, on examining the bare skull a pin-point puncture of the occipital bone was observed an inch to the right, and below the occipital protuberance.

September 12th.—Having obtained the consent of the relatives, $CHll_3$ being cautiously administered, I trephined over the punctured bone, a little below the right lateral sinus. On the removal of the plate of bone, a fracture (comminuted) of the inner table of the skull was found, the fragments of bone being firmly embedded in the dura mater. These were cautiously extracted. There was no visible pulsation of the brain, but it could be felt pulsating on pressure. The dura mater being tense and bulging somewhat into the wound, an exploring needle was plunged into the brain; a little serum followed by pus exuded; then a cataract knife was entered in the track of the needle (inwards and slightly downwards), and from the incision some two to three ounces of thick pus was evacuated. The whole of the right cerebellar lobe seemed to have been converted into an abscess cavity. An indiarubber drainage tube was then inserted, just into the mouth of the abscess cavity, and the horse-shoe flap allowed to fall over into place. After evacuation of the abscess cavity, the brain substance was seen to pulsate.

The patient bore the operation well, and his respiration improved as soon as the pus was evacuated.

September 13th.—Patient passed a good night. Seems brighter and more intelligent. No longer complains of pain in the head. Pulse 120. Temperature 99°.2 F.

September 14th.—Temperature 101°.6. Pulse 124. The wound was dressed. Tube found not to be draining properly, so fresh one inserted. Discharge more serous than purulent.

[1] This is a mission hospital in the midst of a bigoted Moslem city, and the patient was a Mohammedan child.

September 15th.—Temperature 99°.2. Pulse 120. Patient much better. Knee reflexes have returned. Pupils (especially right) much smaller.

September 17th.—Temperature 99°.8. A worm powder having been administered the previous day, patient passed eight worms.

September 20th.—Temperature normal. Pulse 112. Wound dressed. Very little discharge. Granulations quite healthy.

September 21st.—Right pupil no longer dilated. Child has evidently received full power in limbs.

October 3rd.—Drainage tube removed. No discharge. Whole wound healing rapidly.

October 9th.—Temperature 102°.6. Worm powder ordered.

October 10th.—Temperature 99°. Passed many worms.

October 11th.—Wound in scalp healed. Patient allowed out of bed; has full use of limbs.

October 13th.—Temperature 101°.

October 14th.—Temperature 99°. Passed more worms.

October 18th.—Discharged cured. Able to run races in the ward.

Patient was seen again a month after discharge from hospital, and there had been no return of symptoms.

NOTE.—Professor Macewen draws attention to the fact that in cases of pressure in the cerebellar fossa, implicating the medullary respiratory centre, the respiration may be gravely imperilled. This may have been the explanation of the sudden stoppage of breathing of the patient during the first operation. If the cerebellar abscess had at that time been suspected, I should have been strongly tempted to have proceeded with the operation and to have evacuated the pus at the one sitting. In the above case the symptoms of cerebellar abscess were marked, and for some days it was doubtful (the scalp wound having quite healed) whether the whole symptoms could not be explained by the presence of a large number of round-worms.

Births and Deaths registered in Eight of the Principal Towns of Scotland during March 1905

DURING the month of March 1905 there were registered in the towns of Glasgow, Edinburgh, Dundee, Aberdeen, Paisley, Leith, Greenock, and Perth, the births of 4481 living children, of whom 2233 were males and 2248 females. These births are equivalent to an annual birth-rate of 30.2 per thousand of the estimated population of the eight towns. The equivalent annual birth-rate for the month was highest in Glasgow, 33.2, and lowest in Perth, 22.4, and Edinburgh, 24.1. In Aberdeen this rate was 32.1; in Greenock, 32.0; in Paisley, 30.1; in Leith, 29.8; and in Dundee, 27.0. The births registered in

these eight towns are 873 more than in the previous month, and 112 more than in the corresponding month of 1904.

Of the total births, 302, or 6.7 per cent., were illegitimate. This rate for the month was highest in Perth, 12.3, and lowest in Greenock, 2.6. In Glasgow it was 7.4; in Aberdeen, 7.2; in Edinburgh, 7.0; in Dundee, 6.7; in Paisley, 4.1; and in Leith, 2.9.

Deaths registered in these eight towns during the month numbered 2698, the equivalent annual death-rate being 18.2 per thousand. These deaths are 248 more than in February, but 522 fewer than in March 1904. The death-rate for the month is 0.1 less than for the previous month, and 3.8 less than that for the corresponding month of 1904. The death-rate for the month was highest in Greenock, 23.0; and lowest in Leith, 16.3. In Dundee it was 19.4; in Aberdeen, 19.3; in Perth, 18.9; in Glasgow, 18.1; in Edinburgh, 16.8; and in Paisley, 16.7. In Paisley, Leith, and Greenock the death-rate was higher this month than in February, while in each of the other towns it was lower than in that month.

Of the 2698 deaths registered during the month, 861, or 31.9 per cent., were of children of under five years old; and 738, or 27.4 per cent., of persons of over sixty. Deaths of children of under five were 53 more than in February, but 232 fewer than in March 1904. Deaths of persons of over sixty were 80 more than in February, but 126 fewer than in March 1904.

Deaths of children of less than one year old numbered 543; these are 27 more than in February, but 100 fewer than in March 1904. The infantile mortality-rate for these eight towns —*i.e.* the number of deaths per thousand of the average monthly number of births—was 129, a rate which is 7 less than that for February, and 20 less than that for March 1904. The infantile mortality-rate for the month was highest in Dundee, 157; and lowest in Leith, 75. In Aberdeen it was 142; in Greenock, 140; in Edinburgh, 133; in Glasgow, 127; in Paisley, 116; and in Perth, 87. In Edinburgh, Dundee, Paisley, and Greenock, this rate was higher than in the previous month; in each of the other towns it was lower than in that month.

Deaths from the principal epidemic diseases numbered 202; this is 5 more than in February, but 109 fewer than in March 1904. The equivalent annual death-rate from these causes was 1.4 per thousand, a rate which is 0.1 less than that for February, and 0.7 less than that for March 1904. This rate for the month was highest in Greenock, 2.3, and lowest in Aberdeen, 0.6. In Perth it was 2.1; in Glasgow, 1.8; in Edinburgh, 1.1; in Paisley, 1.0; in Dundee, 0.8; and in Leith, 0.7.

There were no deaths from small-pox registered during the

month in the eight towns. Deaths from measles in them numbered 32, which is 11 more than in February, but 63 fewer than in March 1904. Deaths from scarlet fever numbered 6, which is 1 more than in February, but 7 fewer than in March 1904. Deaths from whooping-cough numbered 117; this is 10 more than in the previous month, and 3 more than in the corresponding month of 1904. Deaths from diphtheria numbered 24; this is 2 more than in February, and 6 more than in March 1904. Deaths from enteric fever numbered 8, and from typhus fever 2; the former are 8 fewer than in the previous month, and the latter 6 fewer than in that month. Deaths from diarrhœas numbered 13, which is 5 fewer than in the previous month, and 20 fewer than in March 1904.

Deaths from influenza numbered 44; this is 9 more than in February, and 17 more than in March 1904.

Deaths from puerperal septic conditions numbered 9; from malignant disease, 141, of which 73 were ascribed to carcinoma 10 to sarcoma, and 58 to cancer not otherwise described. Deaths from heart disease numbered 236; from apoplexies, 144; from premature birth, 89; and from alcoholism, 9.

Deaths from pneumonia numbered 288, and constituted 10.7 per cent. of the total deaths; while those from bronchitis numbered 222, and constituted 8.2 per cent. of the total deaths. Deaths from pneumonia were 37 more than in February, but 54 fewer than in March 1904; while deaths from bronchitis were 11 more than in February, but 78 fewer than in March 1904.

Deaths from phthisis numbered 254, and constituted 9.4 per cent. of the total deaths. These deaths were 12 more than in February, but 17 fewer than in March 1904.

Meetings of Societies

Royal Medical Society, Edinburgh

AT a meeting of this Society, held on the 13th of January, Dr John Thomson read a paper on Congenital Pyloric Spasm. He commenced by considering the history of the subject, and then went on to discuss the pathology of the condition and its causation. He mentioned two theories in this connection, the first that it was due to simple hyperplasia, and the second that it was an overgrowth following on overwork. He concluded by going fully into the question of treatment, both medical and surgical.

Dr A. C. Geddes proposed, and Dr L. S. Milne seconded, a very hearty vote of thanks to Dr Thomson.

Dr H. D. Shepherd read a dissertation on the Evolution of the Limbs. In the course of his remarks he first considered the course of vertebrate development, and then compared the hind limbs of the newt, frog and horse, as representing three well-marked stages in that development.

Dr J. M. Graham read notes of three cases of Hysteroparalysis.

AT a meeting on the 20th of January Dr J. M. Beatie read a paper on the Pathology of Rheumatism. He outlined briefly the bacterial theory of causation, and then described the results which he had obtained in three fatal cases of rheumatism. In these cases he had been able to obtain from the knee-joint a micrococcus which resembled that described by Poynton and Paine in its microscopic and pathogenic characters. After having discussed the theories which suppose that the condition is due to an attenuated anæmia, or to a streptococcal septicæmia, Dr Beatie concluded by saying that the micrococcus was clearly the specific organism of rheumatic fever.

Mr Graham Brown read a paper on Brown-Séquard Epilepsy, and Dr Wilson Smith notes of two cases of Acute Nephritis.

ON the 27th of January a dissertation by Dr C. R. P. Mitchell on Head Injuries was read in his absence.

Dr V. T. Carruthers showed specimens from two cases of Tumour and Dr Chambers read notes of a case of Addison's Disease.

On the 3rd of February Dr W. E. Carnegie Dickson gave a demonstration of Pathological Marrow Conditions, and discussed the development, physiology and pathology of the various marrow cells.

Dr H. J. Dunbar read a dissertation on the Diagnostic Value of the Examination of the Blood. He went somewhat fully into the different histological changes which are found in the blood, and enumerated the conditions in which they are found. He concluded with a consideration of the value of the freezing-point in diagnosis, and the bacteriological reactions.

Dr L. S. Milne read notes of a case in which the pericardium was adherent.

ON the 10th of February Dr F. W. N. Haultain read a paper on Fibroid of the Uterus. He divided fibroids into two classes, namely those which did not cause inconvenience, and those which did. He considered the question of operative inter-

ference in these two classes at length, and concluded by discussing the best operative methods to use, stating that he preferred suprapubic hysterectomy. Dr Haultain also showed some very interesting specimens connected with the subject.

Dr A. C. Geddes moved, and Mr J. D. Wells seconded, a very hearty vote of thanks.

Dr H. N. Fletcher read a dissertation by Dr Matthews on Tubercular Peritonitis.

The Glasgow Medico-Chirurgical Society

A SPECIAL meeting of the Society was held on Friday, March 24, in the Royal Philosophical Society's Rooms, to hear an address on the growth of cancer by Dr Bashford, London. The President, Dr Newman, occupied the chair, and there was a large attendance of the medical profession.

Dr Newman, in making a few introductory remarks, said that great renown would attend the man who discovered the cause and cure of cancer. The Cancer Research movement had begun under the most favourable auspices, the King himself being Patron, while the Prince of Wales was President. Many influential men had approved of its object and given it their support. He explained generally the constitution of the Research Association, including as it did among its members pathologists, statisticians and others who might be able to advise and help. He explained how far-reaching was the scheme, embracing really the whole empire, and how details were supervised by committees. They were always in touch with what was being done abroad, and they were able to utilise all additions made to the knowledge of the subject. It was felt that it was in laboratory rather than in the hospital that real scientific advance must be made. In conclusion, Dr Newman emphasised the fact that the whole thing was kept up by voluntary subscription, and that the West of Scotland had contributed largely to the scheme. He then introduced Dr Bashford.

Dr Bashford said the subject was so vast that he would limit himself to one aspect, viz. the growth of cancer. How great even this aspect was had only recently been appreciated, when they began to be able to cultivate and propagate cancer under artificial circumstances. It had been able, for example, to keep a cancer growing for 3½ years after the death of the animal which furnished it, and which it had killed. The first step on the way to aid the practitioner in the actual treatment of cancer was to enquire how it grew so greatly. It was a profound problem, for whereas a mouse might live 3 years, a

cancer that had killed it could live 3½ years, going on growing and adding continually to its bulk, apparently in contradiction to all the ordinary laws that regulate growth. The first problem, then, was to study the growth of cancer; this could not be done by physicians observing isolated cases in hospital, for only a short time perhaps, and then losing sight of them. If one did that alone, a feeling of pessimism was engendered. The problem had to be solved by laboratory workers, by men working with cancer under special experimental conditions, and varying these conditions at will. Diet and environment (at least civilization) had little influence on the origin of cancer. It occurred in India and Africa as in England, and among the vegetable-eaters as amongst the flesh-consumers. It was the same, too, essentially, in all vertebrata. When propagation of cancer was done we had the cells of one animal living in the tissues of another, and showing a great tendency to multiply. Was this multiplication continuous and uninterrupted, or broken at times? Experimental evidence pointed to the latter as being the case. Cancer growth, too, was largely limited by the length of life of the animal affected, and this of course varied in different animals, a horse being old at 15 years, a man at 75. Dr Bashford said that he thought he might say that so far the inquiry had made out: (1) That cancer was practically the same in all vertebrata, the time when it appears being fixed by the span of the host's life. (2) That cancer could be artificially propagated; it was only by doing this that its great power of growth could be observed. (3) That artificially grown cancer was as dangerous as natural cancer. (4) Although the growth artificially is very exuberant, the cells are all of one type and are like those of primary tumour. (5) That it was most likely that the growth was being continually renewed, just as a species is kept going by new individuals always appearing. A sort of fertilization in the cancer kept up the power of proliferation. (6) The practical outcome so far was that the best thing was to treat surgically as early as possible all cancerous growths and all conditions suggestive of cancer.

Dr Newman, in moving a vote of thanks to Dr Bashford, said that it was a cheering indication that the evidence on the whole pointed to the local, not constitutional, origin of cancer—a state of things that made them hopeful of good results from surgery.

Sir Hector Cameron moved a vote of thanks to the President.

THE eleventh ordinary meeting was held on April 7—the President, Dr Newman, in the chair.

1. Dr Forrest showed and read notes of a case of acute

exudative choroiditis, with complete amaurosis of two weeks' duration, with recovery.

2. Dr Alex. Maclennan described two cases of knee-joint affection which he had treated by drainage. One was in a woman who had come in for operation on the glands of the neck. Next day she had extreme tenderness of knee and ankle with effusion. Dr Maclennan opened the knee-joint by one incision to the outer side and above the patella, and by another at the lower and inner side. The joint contained clear serous fluid, and it was evidently a rheumatic case. A drainage-tube was passed under the patella and the joint flushed daily with 1-40 carbolic lotion. The ankle was treated by multiple skin incisions. In 21 days both joints were quite well. Dr Maclennan also described a case of purulent effusion in a child treated by the same method. He showed two appendices, one of which at operation contained thread-worms, while the other was filled with a solid core or concretion of hard fæces.

3. Dr Geo. B. Buchanan described a case of malignant disease of the thyroid (left side), where the chief symptom was dysphagia, for which gastrostomy was performed. There was no dyspnœa. There was general sweating, from sympathetic involvement, except on the left side of the head, and the recurrent laryngeal was affected, causing abductor paralysis and dilatation of the pupil. The patient left hospital relieved, and died at home later on.

4. Dr Thos. H. Bryce read a short paper on "Fertilisation, conjugation, and the physiological heterotype mitosis in relation to the cancer question," with lantern illustrations.

Glasgow Pathological and Clinical Society

THE seventh ordinary meeting was held on April 10 — the Vice-President, Dr Rutherfurd, in the chair. There was a fair attendance.

1. Dr J. R. Riddell showed a large number of cases which had been under treatment by X-rays. The cases included: (*a*) Seven patients with rodent ulcer, the longest period of cure being two years. Many of these were of quite long standing, and in some instances many sittings were required, one man having had well over 100. (*b*) A case of epithelioma of the lip, which had 70 sittings, and has now been well eleven months. (*c*) Four cases of lupus, three being well now, and one still under treatment. (*d*) Two cases of sarcoma, with microscopic specimens. One was in a woman, seen first three years ago, when she complained of

a tumour of the nose; it grew rapidly, and blocked the whole of the left nostril. It was X-rayed from November 1902 till April 1903, by which time it had shrunk a good deal. It was then removed surgically and the stump X-rayed till August of that year. The second case was that of a man with round-celled sarcoma of the naso-pharynx. It obstructed the nose, and felt like a mass of adenoids, but microscopical examination revealed its malignant character. It was X-rayed from June 1904 till January 1905, there being 60 sittings in that time, and is now much smaller.

2. Dr A. K. Chalmers, Medical Officer for Glasgow, introduced a communication on cases of human glanders in the city. The condition was a very infrequent one, as they had had no cases reported between 1878 and 1892, and since 1892 only 4. Of these 4 cases, 3 were associated with stables known at the time to be infected; the fourth was from a stable said to be non-infected, but which its human case showed to contain the infection. Of these cases, 1 occurred in 1892, 2 in 1903, and 1 in 1905. Considering the risks run, man was comparatively immune to glanders, but when he was attacked, the disease was almost always fatal. Dr Chalmers also referred to the regulations of the Glanders Order and to the notification of the disease.

Dr J. W. Anderson, who followed, stated that he had had the unusual experience of having had 3 cases in his private practice. The first was 27 years ago (1878), and he could not make a diagnosis; he believed it to be a case of pleuro-pneumonia, and the patient was very ill. Dr J. B. Russell, then M.O.H. for Glasgow, considered it a case of human glanders, and later "farcy buds" developed. The man died after an illness of about 14 days. His second case was in a stableman of 52 years who had been in contact with a glandered horse. He complained of pain in his head and limbs, feverishness, and thirst, and at first treated himself at home. He had rigors too, and presently developed a nasal catarrh, with superficial sores. Swellings then appeared on the face and legs, and he looked very ill. Delirium set in, with high fever, and he died after 5 days of grave illness. He was aware that he had the disease.

Dr Anderson's third case occurred 7 weeks ago (February 1905), and was in a young stableman. His condition was serious from the beginning, and was very puzzling. At first it was thought to be pneumonia, and later on, enteric, the fever ranging from 102° to 104°. Repeated Widals were negative. Numerous medical men saw him, but could not make it out, till Dr Anderson, remembering his previous cases, made a further thorough examination of the patient, and discovered the pustules on the legs. He died after 14 days' illness.

Dr Tyson also reported a case of glanders occurring in a patient of his who came much in contact with horses, and who fell ill in June 1903, one week after attending a horse sale at Perth. A note of the clinical course of the case was given.

Dr R. M. Buchanan, City Bacteriologist, gave an account of the pathology of this affection, and exhibited many specimens, including various organs, and the skin from glanders in man and the horse, as well as cultures of the B. Mallei, and stained films of the organism.

Glasgow Obstetrical and Gynæcological Society

THE sixth ordinary meeting was held on March 22—the President, Dr J. K. Kelly, in the chair. There was a good attendance. The following fresh specimens were shown :—

1. By Dr Sam. J. Cameron: (*a*) a dermoid cyst; (*b*) a sarcoma of the broad ligament; (*c*) a uterus removed for bleeding; (*d*) a solid fibroid with torsion of the pedicle.

2. By Dr Stark: a large sub-mucous fibroid of 1 lb. weight, causing only bladder symptoms, and removed *per vaginam.*

3. Dr Balfour Marshall described a case of hydronephrosis which was mistaken for an ovarian cyst. The patient was a young woman, who had had one child. For more than a year the abdomen had been distending, and there had been several attacks of pain with sickness. The pain was in the left iliac region, there were no urinary symptoms, and there was no vaginal bleeding, but much leucorrhœa. The abdomen was distended to the size of a seven months' pregnancy, and was occupied by a distinct tumour, generally cystic, but with some boss-like projections on it. It dipped down into the pelvis. *Per vaginam*, nothing very positive could be determined. The urine was normal. When laparotomy was done on October 14, 1904, the tumour was found to have no connection with the pelvis, and to lie behind the peritoneum. It was a hydronephrosis, and was shelled out, and the renal vessels and ureter ligated. Recovery was good. The cyst showed distinct lobulation, and had many septa; a calculus blocked the entrance into the ureter. In diagnosing such conditions one should rely on the situation, the relation of the colon, and perhaps on the effect of segregating the urine. The case was discussed by Drs Reid, Maclennan, Douglas, and the President.

4. Dr J. K. Kelly described a case of ovarian dermoid tumour, with torsion of the pedicle complicating pregnancy.

The patient was a iii-para, aged 27, who was admitted under Dr Kelly's care for severe abdominal pain. She was supposed to be 3½ months pregnant. Some weeks before she had had sudden pain, with sickness and vomiting, and her doctor had found a mass in the pelvis, which he pushed up and kept in place by a pessary. This relieved her till the pain returned. The patient when admitted had rise of temperature, and the abdomen was enlarged by a swelling in two parts, one portion being softer than the other. Diagnosis of ovarian cyst was made, and the abdomen opened, when it was found to be a large dermoid cyst of the right ovary. The fallopian tube and ovarian ligament were quite black from torsion.

The uterus was little disturbed and recovery was good. The tumour contained greyish soft matter and hair. Dr Kelly remarked that if torsion had not occurred, the tumour would probably not have been detected. In the past few years they had had thirty-six cases of ovarian tumour in the ward, four of which were associated with pregnancy. The proper treatment was to open the abdomen and remove the tumour, which could be done quite well without disturbing the pregnancy.

Drs Jardine, S. Cameron, and M'Bride spoke on this case, and Dr Kelly replied.

5. Dr Jardine read a paper on some obstetrical cases of special interest. Time did not permit of the whole paper being read, but the following cases were given :—

(*a*) A case of ovarian tumour obstructing labour. The patient was a vii-para, and had been seven hours in labour. The head was at the brim, and above and beside it was an obstructing mass, which was considerably fixed. The abdominal route was selected for operation, and the pregnant uterus lifted well out, when a tumour of the right ovary was found with many adhesions. These were broken down, and the growth removed. The abdominal wound was then clamped, and the child delivered by forceps. The incision in the parietes was then well sutured, and recovery was good.

(*b*) A case of hydrorrhœa gravidarum and placenta prævia (complete) in a primipara. The patient became pregnant in February 1904, and a few months later received a severe shock from a heavy man being thrown on to her lap in the starting of a tramway-car. She suffered much pain, but there was no bleeding. Frequently throughout the pregnancy there was an escape of clear watery fluid from the uterus—a hydrorrhœa. Labour came on on November 29, when there was found to be a complete placenta prævia. Dr Jardine plugged first, then put in a Champetière de Ribes' bag and, when the os permitted of it, went right through the placenta, turned, and delivered a live

child. The patient recovered well. Dr Jardine discussed the question as to whether hydrorrhœa gravidarum was an escape of liquor amnii or a secretion of a watery nature from the uterine wall and coverings. The former view was supported here by the fact that at labour the liquor amnii was scanty.

(*c*) Three cases of accidental hæmorrhage: (1) A case of a ii-para with a contracted (rachitic) pelvis, with hæmorrhage and rapid pulse. The child was alive, so Cæsarean section was done, and a living child obtained. The placenta was found partially separated. The tubes were divided and tied, and the uterus left. (2) A case of a vi-para of 29, pregnant, with free hæmorrhage and a distended abdomen. The uterus was as high as the navel. Hydatidiform node was suspected, but no vesicles were found. The uterus was cleared out, and a small fœtus and much blood-clot removed. (3) A case of accidental hæmorrhage (concealed) in a vi-para at term, treated by delivery (version), plugging, and transfusion.

(*d*) A case of pernicious vomiting, with scurvy. The patient was very emaciated and the vomiting excessive. It was arrested by rectal feeding and oxalate of cerium by the mouth. The patient had sores on her body, and while in hospital her feet became blue and cold, with bullæ on them; there was also a general purpuric rash. Professor Stockman, who saw the case, thought it was scorbutus.

(*e*) A case of rupture of the uterus in a vii-para, who was delivered in the Walcher position by forceps. The rupture was caused by the promontory. Four hours later she was collapsed, the abdomen distended, and hysterectomy was done. As the stump got very foul, free plugging with iodoform was resorted to, and the patient suffered from an irregular and high temperature, which Dr Jardine regarded as due to iodoform poisoning.

Glasgow Southern Medical Society

THE thirteenth ordinary meeting was held on April 6—the President, Dr Jas. Hamilton, in the chair. There was a good attendance. The business of the evening consisted of a paper by Mr R. H. Parry on the treatment of Hypertrophy of the Prostate. Mr Parry at the outset referred to the interest in the surgical aspect of this question which the publication of Mr Freyer's writings had aroused, and said that he himself had had eleven enucleations with very good results. He first of all, with the aid of actual specimens and models, gave a lucid account of the anatomy of the gland. He pointed out that its upper surface lay ¾ inch below the pubic ramus, so that there was always a

space between the bone and the gland if the latter were not enlarged. Mr Parry described the pelvic fascia, pointing out that it was the middle layer of this which, splitting, gave rise to the sheath of the prostate. He preferred to use the term sheath here, reserving the name capsule for the outermost part of the muscular tissue. The gland itself consisted of fibrous, muscular and glandular tissue, and he did not believe it anatomically possible to shell the gland out of its sheath without leaving some of the capsule adhering to the latter.

In general it was not a large prostate *per se*, but some complication which sent the patient for medical and surgical advice: this might be:—

1. Acute retention, a not uncommon thing when a man with a large prostate got a chill. In passing the catheter (gum-elastic, Coudé, or large metal), keep to the anterior wall of the urethra when at the prostate. Hæmorrhage often occurred. Do not persist too long with catheters, but try a whiff of chloroform, and if that fails, puncture. If there is much pus, the bladder should be opened.

2. Another complication, continued Mr Parry, is inability to pass water from chronic condition with no great urgency; this is not very important.

3. Pain and frequency of micturition may be severe, making the patient go down rapidly; there may be a purulent cystitis.

4. Dribbling of urine from a bladder never completely emptied may be the chief annoyance.

5. In some cases the feeling of weight and distension in the pelvis is the main thing complained of.

As regards treatment, Mr Parry said one must consider the age, general health, local condition (if cystitis), and circumstances of the patient. In some the regular and careful use of the catheter was sufficient, in others a supra-pubic cystotomy gave relief; he had done six cases. The ideal treatment was removal of the organ. In simple hypertrophy, the supra-pubic route was the best, the time needed for actual operation being only two to three minutes. The gland was enucleated by the finger, and he believed part of the capsule was always left with the sheath. In the case of small inflammatory swelling the perineal route might be the better. He had done eleven enucleations: of these eight were now alive; the ninth lived eight months after the operation, and died of apoplexy; the tenth was extremely ill at the time of operation, and survived it only a day; the last died of sepsis on the sixth day. Only two, therefore, had died from the operation, and one of these was hopeless. A discussion followed and, on the motion of the President, a hearty vote of thanks was accorded Mr Parry for his excellent paper.

THE Southern Society, at the invitation of Dr Ebenezer Duncan and Dr John Duncan, met at Lynedoch Crescent on Thursday, April 13, when a demonstration of electrical and other apparatus was given, and the members had the opportunity of studying the compressed air chamber—the only one in Scotland — recently introduced by Dr Duncan for therapeutic purposes.

Dr Ebenezer Duncan said that the use of compressed air in the treatment of disease was not new. In the seventeenth century Henshaw constructed a chamber of tiles cemented together, and tried using compressed air in chronic diseases and rarefied air in acute. No detailed results were published. In the middle of the eighteenth century, after Priestley discovered oxygen, Dr Beddoes took up the matter, but was chary of using air containing the new element, being afraid that the vital powers would be too rapidly consumed. He rather advocated de-oxidised air, and inhalation of carbonic acid gas. At the end of the eighteenth century, the Academy of Medicine of Haarlem offered a prize for a contribution on the subject of compressed air on disease, but it was never taken up; in 1830 in France, however, Tabarie and Pravaz used a real compressed air chamber, and twenty years ago Williams in London used it there. There are now fully fifty established in Europe and America; that in the Brompton Hospital has been in use for twenty years. The chief benefits have been derived in asthma, chronic bronchitis, and emphysema; in the latter of which the vital capacity of the lungs has been increased 1000 c.c., while the diameters have at the same time diminished. Compressed air has also been employed in mitral regurgitation, anæmia, amenorrhœa, and whooping-cough. In phthisis it is not so useful, and in late cases of the disease may cause hæmorrhage. Contra-indications are all cases of atheroma or arterio-sclerosis, acute congestions of the kidneys and liver, later phthisis, and bronchiectasis.

Dr Duncan then gave a demonstration of the chamber which had been built for him. It was in the form of an upright cylinder, about 10 feet by 6 feet, and built of steel. It was constructed so as to stand a pressure of 10 lbs. on the square inch, though they did not usually employ so much. The door closed from the inside, and had asbestos on its edges so as to prevent leakage. A window allowed the physician to observe the patient inside, and the latter could communicate with the exterior by telephone. A "lock" permitted of the passage of articles from within out, or *vice versâ*. The temperature was kept right by an electric radiator, while there was also a means of ventilating. The air was passed in, filtered through cotton-wool, and was obtained from an air-compressing machine,

driven by a 5-h.p. electric motor. A gauge indicated the pressure. At the end of the sitting, the opening of stop-cocks steadily diminished the pressure again.

Dr John Duncan gave a demonstration of high-frequency apparatus, X-rays, radium, and a set of Geissler tubes illustrating the evolution of the Crookes tube.

On the motion of the President, a very hearty vote of thanks was given to Dr Ebenezer and Dr John Duncan for their interesting demonstration.

Forfarshire Medical Association

AN ordinary meeting of the Society was held on Friday afternoon, April 7, in the School of Medicine, Dundee—Dr Orr, Tayport, in the chair.

Mr Greig showed a child (previously introduced before operation at the December meeting) upon whom he had performed sub-trochanteric osteotomy for coxa vara. He exhibited stereoscopic photographs of the condition before and after operation, showing the improvement that had taken place.

He also showed a screw-nail removed from the trachea of a child, the position of which was first indicated by the X-rays, a photograph of which was shown. The kidney from a case of congenital hydronephrosis in a child five years old was also exhibited. It contained 122 oz. of fluid when removed.

Dr Dickson, Carnoustie, showed a large calculus removed from the urethra by perineal incision.

Dr Scott presented a child, three days old, born with a form of suppurative dermatitis. An excellent specimen of the whole skin of the hand shed like a glove, from a case of keratolysis neonatorum, was also shown.

Professor Kynoch showed specimens of suppuration in a large uterine fibroid and an ovarian cyst.

Dr R. C. Buist read notes on three cases of grave jaundice. In introduction he stated that he used the words grave jaundice as a literal translation of icterus gravis, and by it he meant severe jaundice associated with unconsciousness. The first case was that of a woman in the seventh month of her fifth pregnancy, who in a previous pregnancy had a transitory jaundice. On admission to hospital she was in a state of coma and collapse, very marked jaundice, vomiting, constipation, petechial hæmorrhages, and all the other symptoms described in acute yellow atrophy. The liver dulness was greatly diminished; there was no leucin or tyrosin in the urine.

Two pints of normal saline solution were introduced into

the left breast and five ounces of saline given every two hours per rectum. Calomel and mist. alb. were given by mouth. After twenty-four hours, the bowels being still unmoved, a large soap and water enema was given, which proved effectual. The saline enemata were continued for several days. Under this treatment, in spite of the onset of premature labour, the patient made a complete recovery.

The second case was that of a woman who, with catarrhal jaundice of a few days' standing, suddenly became unconscious and delirious. The bowels were found to be overloaded, and a sharp purge was quickly followed by recovery with no bad symptoms.

The third case was also that of a woman who, suffering from jaundice, suddenly developed grave symptoms similar to the first case. No leucin or tyrosin were found in the urine. Death took place on the seventh day after the onset of bad symptoms. On post-mortem examination the liver was found to be very small and shrunken, very soft and flabby, showing on the surface and section orange-yellow patches. Coloured drawings of the degenerated condition of the liver cells as seen on microscopic examination were exhibited. The condition was, without doubt, one of acute yellow atrophy of the liver.

The chief point for consideration was, could the first case be called one of that disease also, and if so, could the favourable ending be the result of the treatment? Dr Buist considered that it was. The condition being one of toxæmia, the rational treatment was to dilute as much as possible the toxic poison, and this was accomplished by the saline injections.

With regard to the second case, the active measures adopted would appear to have been the means of preventing the development of further grave symptoms.

Dr Buist then discussed the statistics of the published cases, and mentioned that he could not agree with the usual statement that acute yellow atrophy was most common in pregnant women; he considered that both sexes were equally liable to be attacked by the disease, and that early adult life was the commonest age.

Drs Orr, Kynoch, Dickson, Mackie Whyte, Rogers, Foggie, and Greig took part in the discussion.

Dr Kynoch, who had seen the first case, agreed that it was one of acute yellow atrophy.

Dr Mackie Whyte stated that absence of liver dulness did not necessarily mean that atrophy had taken place. It might be due to a general loss of tone in the liver, or a weakening of the natural supports of the liver allowing a falling back of the organ, and thus giving rise to a loss of dulness.

Professor Kynoch read a paper on "A Retrospect of One Hundred Gynæcological Laparotomies." The cases were tabulated as follows:—

		Total.	Mortality.
Ovariotomy—			
Multilocular cysts	30		
Unilocular cysts	2		
Papillomata	1	43	4
Solid tumour	1		
Dermoid	9		
Incomplete	2	2	
Broad ligament cysts (2 suppurating)		9	1
Extra-uterine gestation—			
Ruptured tube	2	10	
Tubal abortion	8		
Fibromyomata—			
Removal of appendages	4		
Total hysterectomy	2		
Supra-vaginal hysterectomy	3	11	
Enucleation (intra-ligamentary fibroid)	2		2
Tubal disease—			
Pyosalpinx	3		
Hydrosalpinx	1		
Tubercular	2	7	
Tubo-ovarian cyst	1		
Oophorectomy—			
Dysmenorrhœa	1		1
Incipient cystic disease	4	7	
Hæmatoma ovary	2		
Ventro-fixation for prolapse		3	
Exploratory		4	
Ventral hernia		2	
Cæsarean section		2	1
Total		100	9

He also gave short accounts of the most interesting cases and the cause of death in the unsuccessful ones.

Obituary

The Late Sir John Sibbald, M.D., F.R.C.P.E.

SIR JOHN SIBBALD died in Edinburgh at the age of seventy-two on the 20th April 1905. Three months before his death he was attacked with cancer of the throat, which made rapid progress, and, fortunately, was attended by less than the usual amount of pain caused by such a disease. He was educated at Merchiston Castle School and Edinburgh University. After taking his degree he studied in Paris. From the time of taking his degree of M.D. in 1854 until he became an assistant-physician at Morningside in 1857, he had various opportunities of medical experience in Perth Infirmary, in private practice, and in literary work for *The Lancet*. The study of mental disease was taken up by him from a real interest in the subject, and he devoted himself to that branch of medicine for the remainder of his life. Appointed Superintendent of the Argyll Asylum in 1862, after eight years he became one of the Deputy-Commissioners in Lunacy, was promoted to be Commissioner in 1878, and retired, under the age limit, in 1899. When an assistant-physician at Morningside he studied under Griesinger in Berlin, and the impressions he received from the teaching of that great man remained with him all his life. Griesinger and he became personal friends and frequent correspondents. The German physician had been permitted to institute wards in the Charité Hospital at Berlin, which included the treatment and the teaching of both ordinary nervous diseases and of mental cases. That illustration of the solidarity of all brain disease, whether it is accompanied by mental symptoms or not, made an era in the history of psychiatry. In Sibbald's mind it undoubtedly meant the awakening of a larger and more catholic view of the speciality to which he was to devote his life. Showing that this expansion of view was bearing fruit, he, in the year 1860, visited the then little known village of Gheel in Belgium, where the insane had for hundreds of years been treated and cared for in the ordinary families of the villagers and farmers. In 1861 he wrote an account of that visit, and stated the favourable impressions he had formed. This was one means of making the system known in this country, and of profoundly influencing the treatment of the insane in Scotland. He called it "The Cottage System," and on that was partly founded the great and successful experiment of boarding over 2000 patients in Scot-

land in the ordinary cottages of the country. As a Deputy-Commissioner, Sibbald had the supervision of those patients, and the actual results of the system under the careful supervision which is given in Scotland strengthened his first impressions as to its being a real advance in the care of certain forms of mental disease and defect. As a Commissioner he was laborious, unprejudiced, and zealous in his work. Always ready to examine new ideas, he never hesitated to adopt them if they seemed in advance of the old. He gained the confidence of the medical officers of asylums, and they were always ready to consult him in their difficulties. He proved himself also a true friend and guardian of the mentally afflicted in Scotland. The Morison Lectures were delivered by him before the Edinburgh College of Physicians in 1877, his subject being the history of insanity in Greece and Rome, in the Middle Ages and in modern times. These lectures, which were published in the *Journal of Mental Science*, were learned, interesting, and useful. They were full of original investigation into little-known sources. When a Commissioner it was characteristic of the man that he would not allow himself to settle down into routine methods and neglect advances that were being made elsewhere. He repeatedly made tours through England, France, Belgium, and Germany for the sole purpose of seeing what was being done for the insane and their treatment in those countries. When he returned we had the benefit of his observations and conclusions. The College of Physicians of Edinburgh had the advantage for many years of his help on its Council, and he was also one of its representatives on the Conjoint Committee of Management of the Triple Qualification. It was fully expected that he was to have been the next President of the College. He received the honour of knighthood in 1899, immediately on his retirement from the Commissionership, but that retirement in no way lessened his desire to do work for the public and for the insane. He contributed a paper to the Royal Society of Edinburgh on Suicide, and threw a distinctly new light on that subject. He contested, by an ingenious application of statistics, the common idea that suicide is on the increase of late years.

The Edinburgh District Lunacy Board soon after his retirement proposed to build a new institution for their patients. Sibbald at once started off to see the German village asylum at Alt Scherbitz. He carefully studied its working on the spot, and on coming home published a paper on the system with plans. He recommended the same principle for adoption at the proposed institution at Bangour. The Edinburgh District Board coincided with his views and wisely appointed him to be its medical adviser. Under his advice the new asylum

promises to be the most complete example in this country of a village mental hospital. But though he was now advancing in years his mind did not cease to advance, for he threw himself zealously into a movement which was being enthusiastically supported in Edinburgh by many persons to establish psychiatric wards in the Royal Infirmary of Edinburgh for the treatment of early and transitory mental affections without certification under the Lunacy Acts. He did not live to see this important advance in psychiatry carried out. Such a movement requires time and the education of the public mind as well as slight changes in the law. No doubt its accomplishment is merely a question of time. His last work was the Chairmanship of the Executive Committee of the Home Relief Congress in Edinburgh in 1903. The chief stress of the hard work of organising the Congress fell on him, and its success was chiefly his.

Sir John Sibbald was a man who read much on many subjects besides his own department. He was slow in speech and in mental working. His conclusions thus slowly formed were usually correct, and they were held with extraordinary tenacity. Conscientious to an almost excessive degree, he did not spare himself to carry out his duty faithfully. He was markedly "wide-minded," being philanthropic in a large sense; he was personally kind in speech and manner. He made no enemies, and his friends trusted and consulted him with absolute confidence. He had a keen sense of humour, an absolutely necessary quality in dealing successfully with the mentally afflicted. During his last illness, with death staring him daily in the face, he was always cheerful and brave. Religion was to him a real principle of life and a source of comfort in death, but his religious beliefs and faith were not paraded. His loss will be greatly felt by the College of Physicians and by many in the profession of medicine in Edinburgh.

T. S. C.

Dr Alexander Matthew, Corstorphine

By the untimely death of Dr Alexander Matthew of Corstorphine, a hard-worked and highly-valued medical man has been removed from his labour.

Dr Matthew's practice combined the advantage of a town and country one. Near enough to Edinburgh to enable him to take full advantage of the meetings of medical societies and of the College of Surgeons, he had also the charge of a wide country district, which gave him abundant responsibility and much hard

work. Dr Matthew practised in Kinross for some years, but more than twenty years ago came to Corstorphine, where he rapidly gathered round him a large and devoted circle of patients. He was a most friendly, courteous, and unselfish man, who was always ready to help and counsel. He will be much missed in all his relations of life, by his family, his church, and his village.

Editorial Notes and News[1]

The Alien Question.

ALIEN immigration is a subject of national importance, but it is also one which has important side issues. Among these is the question of danger arising from the introduction into our country of contagious diseases. The Americans have found it necessary to make very strict rules as to the health of alien immigrants, and in this country we have recently heard of the appearance of a serious disease, anchylostomiasis, from which we have hitherto been free. Whatever view may be taken of the larger question, it will be admitted by all that it is the duty of the Government to see that the people of these realms are protected, so far as protection is possible, from the introduction among them of immigrants suffering from communicable disease. In view of the importance of this question, we have no hesitation in referring our readers to a very interesting communication in the current number of one of our contemporaries, *Pearson's Monthly*. In that journal Miss Malvery, a young lady who has already earned some notoriety by her experiences among the poor, commences a series of articles dealing with the "alien" as he appears at home, and at the various ports which each year send large numbers of foreigners to England. Miss Malvery visited Marseilles, Genoa, Rome, Naples, Dieppe, Havre, Bremen, Amsterdam, Antwerp, and points along the Russian frontier, and at these places saw a great deal that escapes the notice of the ordinary tourist.

How the people whom Miss Malvery visited live in their own countries need not concern us here. What is of more direct interest is the contrast, which she found at all ports embarking emigrants for America, between the care taken in the examination of those going to America, and the absence of any such care in the case of those going to England. At Naples, for example, all emigrants desiring to go to the United States must first present themselves at the American Consulate. A

[1] This department of the Journal is under the control of the Senior Editor.

very close physical examination is made and those considered fit are given an inspection card stamped with the Consular seal. Without this card no emigrant can enter the United States. The examination is most rigorous. All contagious diseases are looked for, minor physical defects, such as would prevent a man from making a living, are noted. Thus a stone-mason may be rejected for having a broken thumb.

At Hamburg the German Government, in connection with the Hamburg-American line, has built an enormous emigration depot. Here all emigrants are bathed, and their clothes are disinfected. Emigrants for America are examined by specialists employed by the United States, but no such attention is paid to those who wish to go to England, and indeed those who are rejected by the United States' inspectors have no difficulty in finding their way to England if they wish to. Many emigrants to England start from Bremen and thus escape the vigorous cleaning-up process to which they would be subjected at Hamburg.

Miss Malvery's article, which is the first of a series, contains a good deal more information, but we have quoted enough to draw attention to the subject, and to illustrate the fact that here, as in so many other cases, England adopts her usual plan of not attempting to prevent an evil until it assumes such large proportions as to necessitate very vigorous methods indeed.

School Children in Dundee.

THE Dundee Social Union has undertaken an enquiry to ascertain the social and economic conditions of the working classes, with special reference to the employment of women and children. The principal report, dealing with housing conditions, is not yet ready for publication, but the medical part of the inquiry dealing with the school children has just been published by Messrs John Leng & Co., Dundee. The report deals with 1000 children, and the examination, on the advice of Dr Leslie Mackenzie, followed in the main the lines of the recent inquiry in Edinburgh, Aberdeen and Glasgow. The principle of selection was as follows:—Having ascertained the number required from each standard, every second, third, or fourth child on the register, as the case might be, was selected to make up the necessary number. This selection of certain children for examination seems to have led to some objection on the part of parents who were suspicious that the children were selected from some sinister motive, and it is thought that if such inspection were general and became part of the ordinary school routine, all objections on the part of parents would soon disappear.

The results of the examination show that the Dundee school children on the whole are badly nourished. The boys of one school are described as presenting a "poor, underfed appearance."

With regard to cleanliness of clothing and person, the appearance of the children varied considerably in the different schools, but on the whole, Dundee shows very badly. No fewer than 17.5 per cent. of the Dundee children were classified as "bad" in respect of cleanliness of clothing, and 16.7 per cent. in respect to bodily cleanliness, against 3.17 and 8.5 per cent. for Edinburgh, and .8 and 2.5 for Aberdeen respectively. The number of verminous children was large, but it was obvious that the condition of many was due to their contact with others and not to neglect at home. It is a hardship that the children of careful mothers should be exposed to such risks, and the problem of diminishing them is one of the first which should be taken up by the medical officers of schools when these officials come into existence.

Of the diseases from which children were found to be suffering, the most important were affections of the heart. These formed the large proportion of 7.47 per cent. of children examined, whereas in Glasgow they numbered 5.83 per cent.; in Edinburgh 4.33; and in Aberdeen 1 per cent. The form of heart affection differed in the two sexes. Among the boys were 36 cases, of which 30 showed evidence of valvular defect, including 6 with a pulmonary systolic murmur, probably functional. This leaves 24 cases of organic valvular disease out of 36 cases. Among the girls, 43 are noted as suffering from some affection of the heart, but in only 8 of these was the diagnosis of organic valvular disease arrived at. This discrepancy is rather remarkable, especially as girls are distinctly more liable than boys both to rheumatism and chorea.

Affections of the lungs are noted in a large proportion of cases, but most of these were simply cases of bronchial catarrh, which was largely owing to the season of the year at which the examination was made. There were also found, however, a considerable number of cases of more serious disease which should have been excluded from school attendance.

An interesting and important table is given, showing the physical condition of pupils considered "dull" by the teachers. Such children numbered 87. Of these, 63 were found to be suffering from errors of refraction, chiefly hypermetropia, while other three had other affections of the eye (right convergent squint and nystagmus; corneal nebula in right eye; anterior polar cataract in right eye and occlusion of left pupil). The prevalence of hypermetropia is important, as many of these cases would be overlooked if, as is sometimes suggested, the teachers

were entrusted with the duty of making the preliminary tests of the pupils with Snellen's types.

Of the 87 dull pupils, 55 were found to be suffering from some affection of the nose, throat, or ears, and there can be no doubt that in a great many instances the mental dulness simply meant a greater or less degree of deafness, often due to some easily remediable condition.

Altogether this report emphasises very strongly the facts which we are already beginning to recognise, that very many children are attending our public elementary schools who are not in a physical condition to enable them to profit by the instruction given to them; that many are suffering from diseases which will inevitably cripple their future usefulness if not promptly treated; and that in many of these cases neither parents nor teachers even suspect that there is anything wrong with the children.

One other feature of child life in Dundee deserves mention, and that is that large numbers of children and young people are employed in the jute mills. The system adopted is the alternate day system, that is, the children spend alternate days at school and at work. With some of the works, however, half-time schools are connected, and the children are at school from 9 A.M. to 11.45 A.M., or from 12.15 P.M. to 3 P.M. alternate weeks. Half-time employment, says the Report, seems to be decreasing in Dundee; meanwhile the arrangements made at these schools would appear to be less trying to the health of the children than the alternate day system. Without having any personal acquaintance with Dundee schools, we yet have no hesitation in saying that it would be difficult to devise any system more inimical to the health and to the educational progress of the children than the alternate day system. A half-day system, on the other hand, is not necessarily detrimental to health, provided children are not allowed to work too young, nor is it necessarily so injurious to school work as might be expected, but the plan of having a forenoon and an afternoon at school alternate weeks is a thoroughly bad one, and means that the interests of the children are being sacrificed to suit the routine of the mills. All school work should be done in the morning, when the children are fresh in mind and body. Even when children have the whole day for school, and have no outside work, it is now generally admitted that the lessons which involve most attention and mental effort should be taken in the morning, and those which are less fatiguing, such as drawing, wood-work, etc., in the afternoon. It is folly to expect the children to do good work at school in the afternoon when fatigued by their morning's work in the mills.

The medical report was drawn up under the supervision of Dr Templeman, Medical Officer of Health of Dundee; the medical examination of the children was made by Drs A. P Low and Emily Thomson; the eyes were examined by Drs Neave and Foggie; and the ears and throats by Dr Guild. It is an excellent piece of work and we shall await with interest the appearance of the larger report.

Job.

UNDER the heading, "Les indiscrétions de l'Histoire," Dr Canabès discusses in the *Journal des Maladies Cutanées* the nature of the illness from which Job suffered. He believes him to have been a rich and honest Bedouin who probably lived about a hundred years before the Egyptian captivity. There have been many speculations as to the ailment of this historic patient, and the author discusses them all critically. The sudden development, the ulcers from head to foot, the pains constant, but worse at night, the pain on mastication, the partial blackening of the skin, are all dwelt upon. Then there were hallucinations and delirium, advancing cachexia, fœtor of the breath, and visceral troubles. The complete recovery, followed by the birth of seven sons and three daughters, all healthy, excludes any hereditary malady. Job lived till he was 140.

Among the diseases suggested are syphilis, leprosy, eczema, scabies, gout, sciatica, and erysipelas. One investigator, a Jesuit priest, concluded that Job had no fewer than 32 different diseases. Although Job has been canonised as the patron saint of lepers, Dr Canabès thinks this disease may be excluded, since there was evidently no anæsthesia, while the white leprosy of the Hebrews (probably psoriasis), is confined to the skin.

The author concludes that the disease which most nearly fits the description which has come down to us is scurvy. The painful mastication and the alteration of the voice would thus be accounted for. The discoloration of the skin might quite well be called black, at any rate it is certain that Job did not suffer from Addison's disease. It is an interesting fact that the first recorded epidemic of scurvy occurred in Damietta.

American Exams.

THOSE who think of practising in America, and many who do not, will be interested in the papers set for the licence to practise in the State of New York, which we take from the April number of *The Medical Brief*. We do not know what percentage is necessary to satisfy the examiners.

EXAMINATIONS OF STATE BOARD OF MEDICAL EXAMINERS—NEW YORK.

EXAMINATIONS FOR JANUARY 1905.

MAURICE J. LEWI, M.D., Secretary.

ANATOMY.

Tuesday—9.15 A.M. to 12.15 P.M.

Answer any ten of the questions under each heading, but no more. Check the number (✓) of each one of the questions you have answered.

1. Give a general classification of bones and illustrate each class.
2. Mention the articulations of the occipital bone.
3. Mention the muscles controlling eye movements.
4. Describe the pulmonary artery, and mention its branches.
5. Mention and describe the veins carrying arterial blood.
6. Describe the mesenteric glands.
7. Describe the great sciatic nerve, and give its location.
8. Describe the crystalline lens. What changes are likely to occur in the crystalline lens in old age?
9. Give the relations of the gall-bladder.
10. What is the mediastinum? State how the mediastinum is divided, and mention the contents of each division.
11. Describe the vocal cords.
12. Give the gross anatomy of the kidneys.
13. Describe the prostate gland.
14. Describe the ovaries and state their normal relations to the uterus.
15. Mention in order the tissues divided in an amputation of the middle third of the femur.

PHYSIOLOGY AND HYGIENE.

Tuesday—1.15 to 4.15 P.M.

1. Describe ciliated epithelium and give its common location. State the function of ciliated epithelium.
2. Mention the conditions that hasten the coagulation of blood, and state the means that may be adopted to retard or to prevent this coagulation.
3. State the chemical and mechanical functions of the saliva. What relation does the saliva bear to the sense of taste?
4. Describe in detail the digestion and elimination of a breakfast consisting of plain coffee, oatmeal with milk, ham and eggs.

5. How does the nervous system influence gastric digestion?

6. Give the mechanism of respiration. State the effect of respiration on the blood.

7. What are (*a*) toxins, (*b*) antitoxins? Give the theory on which the prophylactic and the medicinal use of antitoxins is based.

8. Compare arteries, veins and capillaries as to structure and function.

9. State the effect of (*a*) stimulation of the cervical sympathetic nerve, (*b*) section of the cervical sympathetic nerve.

10. What causes the difference between the male voice and the female voice?

11. Give the physiologic and the hygienic effects of (*a*) cold baths, (*b*) hot baths.

12. Describe the most approved method of performing vaccination, and relate the complications that may occur as results of faulty methods.

13. What rules in public health administration should be promulgated to prevent the spread of pulmonary tuberculosis? How should a room recently occupied by a person suffering from tuberculosis be disinfected?

14. What is trichina spiralis? Describe the effects of trichina spiralis on the human system.

15. Describe a system of ventilation for a school-room.

CHEMISTRY.

Wednesday—9.15 A.M. to 12.15 P.M.

1. Differentiate mechanical divisibility and chemical divisibility.

2. Describe a method of generating *one* form of electricity. State the uses of this form.

3. Give the common name, formula, properties, preparation and uses of zinc sulfate.

4. Give the formula and method of manufacture of potassium nitrate.

5. Give the chemistry of hydrogen.

6. Define amid, anilid, radical, chemical chain, residue.

7. Give the symbol, atomic weight and valence of *five* non-metals.

8. Illustrate the significance of *each* of the following terminations: *ate, ite, ous, ic, id.*

9. Iodin is precipitated from sodium iodate by sodium bisulfite and sulfur dioxid; describe the reaction in chemical equation.

10. Determine the composition of water by (*a*) analysis, (*b*) synthesis.

11. State the composition, properties, and the mode of manufacture of carbolic acid. Give tests for carbolic acid.

12. Describe starch. How may starch be recognised chemically? What substance is formed when diastase or dilute acids act on starch?

13. State the theory of the ions.

14. Mention the principal products obtained from petroleum, and describe the properties of *one* of the products mentioned.

15. What is the source of uric acid in the economy? Give the formula and properties of uric acid, and mention its chemical tests.

SURGERY.

Wednesday—1.15 to 4.15 P.M.

1. Define contusion, hematoma, synovitis, fracture, dislocation, sprain, sepsis, asepsis, antisepsis, sterilization.

2. What are the characteristics of a chondroma? In what parts of the body are chondromata most frequently found?

3. Give the indications for nephrectomy, and describe the operation.

4. Give the immediate treatment of compound fracture.

5. Mention the varieties of dislocation of the clavicle. Describe the treatment of *one* variety.

6. Give the symptoms, diagnosis, and treatment of gonorrheal arthritis.

7. Define diastasis. Mention the predisposing and the exciting causes of diastasis.

8. Differentiate arterial hemorrhage, venous hemorrhage, and capillary hemorrhage. On what properties possessed by the blood and vessels does the spontaneous arrest of hemorrhage depend?

9. Give the causes and treatment of rupture of the urinary bladder.

10. Give the physical signs of dilation of the stomach following tumour obstructing the pylorus.

11. Describe stricture of the rectum. Mention the causes and symptoms of stricture of the rectum.

12. Make a differential diagnosis of appendicitis and tubo-ovarian disease.

13. Give the causes, symptoms, and treatment of acute iritis.

14. What complications may attend internal injuries of the esophagus?

15. Give the causes, symptoms, and treatment of erythema pernio (chilblains).

OBSTETRICS.

Thursday—9.15 A.M. to 12.15 P.M.

1. Give a description of the internal female genital organs, and state the function of each.

2. Describe the various stages in the development of sexual reproduction.

3. State the signs and symptoms of pregnancy (*a*) before quickening, (*b*) after quickening.

4. Give general directions for the management of a normal pregnancy.

5. What are the causes of toxemia of pregnancy? Give the management, and state the results of this condition.

6. Describe the causes of dystocia as they relate to (*a*) the mother, (*b*) the child. Narrate the symptoms, and give the management of a case of dystocia from any cause.

7. Give the scientific definition of (*a*) abortion, (*b*) miscarriage, (*c*) premature labour.

8. Mention the causes of puerperal infection. State how puerperal infection may be prevented.

9. Give directions to be followed during pregnancy and the puerperium for (*a*) care of the nipples, (*b*) care of the breasts, (*c*) care of the abdomen. State method of calculating the date of confinement.

10. Give a clinical description of puerperal insanity. State the causes and management of this condition.

11. When is accouchement forcé indicated, and how should it be performed?

12. Describe the several steps in a high forceps delivery.

13. Mention the indications for puerperal curettage. State the dangers, and give the technic of this operation.

14. Give the causes, pathology and management of salpingitis.

15. How and when should an operation for laceration of the perineum from childbirth be performed?

PATHOLOGY AND DIAGNOSIS.

Thursday—1.15 *to* 4.15 P.M.

1. What conditions and environments influence body temperature in health? How does injury to the nerve centers influence body temperature? Explain.

2. Define thrombus, embolus, infarct. Describe the mechanism of an infarct in the spleen.

3. Describe the microscopic lesion in infantile spinal paralysis.

4. What is the significance of adhesions in a serous cavity or in a joint? Describe the method of their formation.

5. What retrogressive changes take place in arteries?

6. Describe blood-plates. What blood changes occur in chronic lymphemia?

7. Describe the condition of the urine in (*a*) chronic parenchymatous nephritis, (*b*) chronic interstitial nephritis.

8. Give a method of demonstrating the existence of tubercle-bacillus in sputum.

9. What pathologic changes occur in the skin in chronic eczema?

10. Give the technic of a physical examination of (*a*) the chest, (*b*) the abdomen.

11. Compare the physical signs of lobar pneumonitis with those of empyema.

12. Give the physiologic causes of persistent vomiting.

13. What is leucocytosis? State the diagnostic significance of leucocytosis. Describe a method of counting the leucocytes.

14. Give a description of a typical case of malarial fever.

15. Distinguish functional heart murmurs from organic heart murmurs.

THERAPEUTICS, PRACTICE AND MATERIA MEDICA.

Friday—9.15 A.M. *to* 12.15 P.M.

". . . in therapeutics, practice and materia medica all the questions submitted to any candidate shall be chosen from those prepared by the board selected by that candidate, and shall be in harmony with the tenets of that school as determined by its State Board of Medical Examiners."

Laws of 1893, ch. 661, § 146.

Questions prepared by the Board of Examiners representing the Medical Society of the State of New York.

1. Compare strychnin sulfate with strychnin nitrate for hypodermic use.

2. Give the etiology, symptomatology and prognosis of tabes dorsalis.

3. Mention the antagonists of veratrum viride.

4. State the therapeutic uses of gallic acid.

5. Give the causes and results of the uric acid diathesis.

6. State the average adult dose of (*a*) powdered opium, (*b*) tincture of opium, (*c*) camphorated tincture of opium, (*d*) morphin sulfate, (*e*) codein.

7. Give the source and the therapeutic uses of terpin hydrate.

8. Give the etiology, diagnosis and treatment of sciatica.

9. Define oxytocic. Mention *three* oxytocics.

10. Give the therapeutic uses of nux vomica.

11. In what disease is hemoptysis a frequent complication? Give the treatment of hemoptysis.

12. Mention *five* saline purgatives, and state the dose of each.

13. Give the therapeutic uses of pilocarpin.

14. How is intermittent malarial fever differentiated from remittent malarial fever? Give the treatment of intermittent malarial fever.

15. What is the chemical antidote for arsenic? Give the dose of this antidote.

THERAPEUTICS, PRACTICE AND MATERIA MEDICA.

Friday—9.15 A.M. *to* 12.15 P.M.

". . . in therapeutics, practice and materia medica all the questions submitted to any candidate shall be chosen from those prepared by the board selected by that candidate, and shall be in harmony with the tenets of that school as determined by its State Board of Medical Examiners."

Laws of 1893, ch. 661, § 146.

Questions prepared by the Board of Examiners representing the Homeopathic Medical Society of the State of New York.

1. Give the symptoms calling for carbo-vegetabilis, belladonna trillium, millefolium, sabina and secale in hemoptysis.

2. Give the treatment of spasmodic croup.

3. Give the eye symptoms of argentum nitricum.

4. Describe the urinary symptoms of belladonna, cantharis, equisetum, and mercurius corrosivus.

5. Give the medicinal treatment of appendicitis.

6. State the clinical uses of conium maculatum.

7. Describe the hepatic symptoms of chelidonium.

8. Give the homeopathic treatment of pleurisy.

9. Describe the homeopathic treatment of lobar pneumonitis.

10. Describe the cough of (*a*) hyoscyamus, (*b*) senega, (*c*) sanguinaria canadensis.

11. Describe the characteristic chest symptoms of antimonium tartaricum.

12. Describe the stomach symptoms of sepia.

13. Give the treatment of a case of gonorrhea.

14. Give the indications for calcaria carbonica in cholera infantum.

15. Give *four* characteristics of pulsatilla.

THERAPEUTICS, PRACTICE AND MATERIA MEDICA.

Friday—9.15 A.M. to 12.15 P.M.

" . . . in therapeutics, practice and materia medica all the questions submitted to any candidate shall be chosen from those prepared by the board selected by that candidate, and shall be in harmony with the tenets of that school as determined by its State Board of Medical Examiners."

Laws of 1893, ch. 661, § 146.

Questions prepared by the Board of Examiners representing the Eclectic Medical Society of the State of New York.

1. What is a styptic? Mention *three* vegetable styptics.
2. Mention the specific indications in a case of albuminous urine with headache and vomiting.
3. Give the source and the uses of atropin.
4. Outline a non-mercurial treatment for the tertiary stage of syphilis.
5. What is potassium citrate? Give the common uses of potassium citrate.
6. Give the specific treatment of heat-stroke, when the patient has a high temperature and a bounding pulse.
7. State the composition and the uses of compound syrup of squill.
8. State the object and give the process of sterilization of milk.
9. Give the habitat and the botanic description of cactus grandiflorus.
10. Give the specific indications in a case of ascites from lesion of the liver.
11. What is aromatic sulphuric acid? Mention the specific indications for the use of aromatic sulphuric acid.
12. Give the treatment of poisoning by carbolic acid. What is the immediate cause of death in poisoning by carbolic acid?
13. Describe the black mustard plant, and state its medicinal uses.
14. Mention some vasomotor depressant drugs, and give the specific indications for their use.
15. Describe iris versicolor, and give the specific indications for its use.

UNIVERSITY OF EDINBURGH

Faculty of Medicine

THE following is the official list of passes at the recent professional examinations for degrees in medicine and surgery:—

First Professional Examination.—J. R. Adam, Janet Armstrong, Annie C. Austin, Alice E. M. Babington, G. L. Batra, A. E. C. Beausoleil, W. M. Biden, V. V. Blake, T. C. Borthwick, A. M. Bose, T. S. Bradburn (with distinction), W. G. Brand, F. A. J. Brodziak, B. S. Browne, J. E. Brydon, W. F. Buist, A. W. Burton (with distinction), J. A. Campbell (with distinction), H. G. Carter, L. L. Cassidy, John Cathcart, H. A. Cookson, N. A. Coward, J. S. Crichton, G. C. Dalton, F. A. Duffield,

W. J. Duncan, G. F. Fismar, Helen Forbes, E. L. Galletly, C. F. C. Galloway, W. T. Gardiner, P. K. Ghosh, H. R. B. Gibson, R. L. Girwood, M.A.; W. E. Goss, D. M. Grant, W. B. Grant, F. W. Greaves, J. A. W. Hackett, A. G. Hamilton, Julia V. Henslow, G. de C. Hugo, Herbert Hutson, W. C. Jardine, W. D. S. Johnston, J. H. Jones, S. A. Karim, Lina Kurz, James Langwill, J. H. Lawry, L. A. Lewis, Harry Lipetz, H. A. V. Loots, P. C. Lornie, J. C. Lorraine, H. F. Lumsden, D. C. Macaskill, M.A.; J. C. MacCallum, J. R. M'Gregor, G. E. G. Mackay (with distinction), Alex. S. Mackenzie, Arch. D. M'Kenzie, J. T. Mackenzie, A. C. M'Killop, Duncan Mackinnon, A. G. MacLeod, Andrew M'Nair, Donald M'Phail, R. C. MacQueen, A. J. Macvie, A. C. Mallace, M.A.; W. M. Menzies, E. L. Middleton, A. F. Miller, L. M. V. Mitchell, J. B. de W. Molony, Flora Morrison, J. A. Mortimer, N. S. Neill, W. J. Nisbet, E. F. W. Nixey, H. O. O'Neill, R. J. E. Paterson, A. R. Price, S. P. P. Proctor, K. A. Rahman, John Renwick, Agatha M. Robinson, Donald Ross, R. P. Rosser, Jessie A. Scott, G. H. Sinclair, Walter Skirrow, H. F. Smith, B.A.; William Stewart, D. E. Stodart, E. A. Strachan, G. P. Taylor, H. W. Teague, Roland Thorp, S. G. Tibbles, Mary M. M. Turpie, John Ware, W. S. Watson, Tom Welsh, Peter Wheeler, E. W. Wilbourne, R. C. Wupperman.

Second Professional Examination.—J. B. Alexander, Marion H. Archibald, M.A.; J. C. Ashton, Aung-Tun, A. C. Barker, C. B. Baxter, A. E. Bennee, Mary F. Bignold, F. G. H. R. Black, Alexander Bremner, Thomas Buchan, Thomas Burrell (with distinction), R. A. Campbell, R. J. Chapman, W. G. Cobb, C. E. A. Coldicutt, C. H. Corbett, F. W. M. Cunningham, S. K. Datta, F. J. Davidson, Mackenzie Douglas, J. C. Drysdale, G. L. Duncan, A. D. Edington, Robert Edwards, P. A. Euvrard, S. B. Faulkner, T. Y. Finlay, William Fleming, W. S. Forbes, Stephen Forrest, M.A.; John Fraser, David Geddis, G. H. R. Gibson, J. B. Gibson, M.A.; R. M. Glover, I. M. Grant, G. R. Gray, J. G. Greenfield (with distinction), A. R. Gunn. D. J. Guthrie, F. G. Harper, George Henderson, A. Fergus Hewat, J. R. Hill, J. K. A. Hofmeyr, J. H. Horne, T. J. Hughes, Alexander Hunter, H. B. Hunter, M.A.; R. H. Jamieson (with distinction), R. F. H. Johnson, J. M. C. Johnston, T. A. Johnston, W. L. Johnston, Daniel Johnstone, G. G. Jolly (with distinction), T. Maitland Jones, M.A., B.Sc.; S. W. Joubers, J. G. de Kock, G. F. V. Leary, J. H. Lechler, David Lees, M.A.; G. L. Little, N. F. R. Lloyd, James Lorimer, Thomas Lyon, Angus Macdonald, John Macdonald, G. D. M'Ivor, James F. Mackay, John L. Mackay (with distinction), A. T. Mackenzie, R. E. M'Laren, Paula Maier, J. A. Manifold, R. E. Marwick, F. W. Michael,

G. G. Middleton, Margaret M. Miller, A. P. Mitchell, John Morrison, James Muckhart, William Murdie, M.A.; F. V. Nanka-Bruce, J. J. H. Nelson, Katharine B. A. Nelson, Joseph Newall, Hilda M. Northcroft, J. L. H. Paterson, C. F. Pattie, G. R. Pillai, W. J. Porteous, N. H. Prior, D. H. Rai, B.A.; Adam N. Robertson, Charles Robertson, David Robertson (with distinction), W. A. Robertson, Elsie B. Saunders, W. A. Scobie, Francis L. Scott, W. J. Simpson, A. G. H. Smart, E. Drybrough Smith, F. F. S. Smith, L. D. Stephen, Dorothy W. Stevenson, W. S. Stevenson, G. H. Stofberg, L. H. F. Thatcher, C. A. Thelander (with distinction), C. P. Theron, David Thomson (with distinction), William Thomson, W. Wilson Thomson, A. L. Thornley, Lydia K. Towers, V. F. Usher, V. A. Vijayakar, Martha B. Webb, J. C. B. Williams, D. J. Williamson, J. L. Wilson.

Third Professional Examination.—J. A. Ainscow, John Alexander, M.A.; W. L. L. Alston, E. H. Black, Richard Bladworth, F. H. Bradley, I. W. Brebner, Elizabeth H. Brook, D. S. Buist, Alice M. Burn, S. T. Champtaloup (with distinction), A. E. Chisholm, S. G. Corner, Dennis Cotterill, R. G. Cunningham, J. A. Currell, J. Spencer Daniell, A. M. Dick (with distinction), T. H. Dickson, A. M. Drennen (with distinction), J. D. C. Duncan, Robert Duncan, S. S. Dykes, M. S. Fraser, Laurence Gibson, G. A. Gordon, M. C. R. Grahame, E. R. Grieveson, George Gunn, J. R. Hall, W. M. P. Henderson, M.A.; T. B. Johnston, N. W. Kidston, Olive T. Leonard, William Lumsden, A. T. M'Donald, J. W. S. Macfie, T. S. M'Intosh, Murdo M'Lean, Helen M. M'Millan, J. B. M'Morland, A. C. B. M'Murtrie, K. W. D. Macrae, A. S. Mactavish, J. N. M'Turk, David Mann, G. M. Melville, Ada E. Miller, Agnes E. Porter, Austin Priestman, George Raffan, Mabel L. Ramsay (with distinction), G. Y. Richardson, John Ritchie, R. M. Robb, W. S. I. Robertson, James Scott, T. H. Scott, H. L. Sells, Alice C. Sharp, R. C. Standring Smith, R. St C. Steuart, A. D. Stewart, K. R. Tampi, W. B. Tannahill, D. R. Taylor, C. H. Tewsley, H. H. Thorburn, F. J. G. Tocher, Annie D. Urquhart, R. H. Walton, A. I. Shepheard Walwyn, W. E. R. Williams, Marian E. Wilson, Emily C. Wybourne.

Third Professional (New Regulations).—G. P. Adshead, J. H. Aikman, A. F. Babonan, J. D. Bowie, H. F. Briggs, C. H. Burgess, J. M. Christie, William Core, M.A.; Arnold Davies, D. D. Dunn, J. S. Edwards (with distinction), Robert Fraser, J. W. Frew, E. C. Girling, J. E. Gordon, W. L. Gordon, K. K. Grieve, Nettie D. Hendrie, A. S. Holden, W. T. A. Jolly, A. G. K. Ledger, Alfred Leitch, Peter Lornie, John M'Cutcheon, W. K. Macdonald (with distinction), J. N. MacLaughlin, J. A.

MacLeod, J. S. Manson, R. P. Mathers, C. Irvine Milne, H. J. More, George Pollock, Edith G. Pycroft, Eustace Russell, W. O. Sclater, E. D. Simson, E. R. Thompson, J. N. Turnbull, A. G. Visser, G. F. C. Wallis, O. H. Williams, Ethel Wiseman, A. W. Young.

Royal College of Physicians of Edinburgh; Royal College of Surgeons of Edinburgh; and Faculty of Physicians and Surgeons of Glasgow.

THE quarterly examinations of the above Board, held in Edinburgh, were concluded on 1st inst., with the following results:—

First Examination, Four Years' Course.—Mr Jesudasan Swamiadian Lamech, Tinnevelly, passed the examination.

First Examination, Five Years' Course.—Of twenty-one candidates entered, the following nine passed the examination:—John Alfred Steele Phillips, Bengal (with distinction); Hugh William Howatson, Calcutta; Ishmael Charles Pratt, Sierra Leone; Thirukama Sundara Reddy, Madras; Franklin Joseph de Souza, India; Thomas Walsh, Mitchelstown; Frederick Robert Watson, New South Wales; Mrs Mary Imrie-Macaulay, India; and James Blackburne, Mitchelstown; and two passed in Physics, three in Biology, and one in Chemistry.

Second Examination, Four Years' Course.—Mr Arthur Donald Roberts, Madras, passed the examination.

Second Examination, Five Years' Course.—Of nineteen candidates entered, the following six passed the examination:—Stewart Ashwood Friar, Belfast; William Fraser M'Kenna, Sheffield; James Scott Jackson Stenhouse, New Zealand; George Edward Anderson, Arbroath (with distinction); Michael Joseph Hayes, Rosscarbery; and John William Rajaturai Rockwood, Ceylon.

Third Examination, Five Years' Course.—Of twenty-two candidates entered, the following ten passed the examination:—Emile Horace George Duncan, Richmond; Lakshmi Narayan Ghosh, India; John William Nelson Roberts, Criccieth; William Linton Watson, Edinburgh; Gilbert Heathcote, Derbyshire; James Samuel Richard Weir, Co. Down; Thomas Wren Faulkner, Australia; Herbert Moncrieff Sturrock, Edinburgh; Douglas Llewellyn George Radford, Leith; and Thomas Alexander Gregg, Ireland; and one passed in Materia Medica.

Final Examination.—Of forty-five candidates entered, the following twenty-four passed the examination, and were admitted L.R.C.P.E., L.R.C.S.E., and L.F.P. & S.G.:—Wilmot

Alvin Graham, Toronto; James Walsh, County Waterford; Sybil Lonie Lewis, Chester; Alfred Harold Singleton, Ontario; James Bartholomew Mears, Tynemouth; Archibald M'Kendrick, Kirkcaldy; Elizabeth Matilda Elderkin Kerr-Harris, Sydney; Frederick William Green, Nova Scotia; Sohrab Shapurji Antia, Central India; William Latto Robertson, Dundee; Duncombe Steele Steele-Perkins, Exeter; George William Craig, Birmingham; William Montgomery Johnston, County Derry; Ayodeji Oyejola, West Africa; Henry James Duff Davidson, Canada; Edward Herrick Knowles, New South Wales; Alexander Thomas Munroe, Canada; Edgar Rae Frankish, Canada; Charles Henry Keegel Scharenguivel, Ceylon; Simon Samuel Sperber, Austria; Mian Kedar Nath Sing Guleria, Punjaub; Gideon Hendrik van Zyl, Cape Colony; Ardeshir Cowasji Dhondy, Bombay; and Henry Edward Bolton, Ireland; and two passed in Medicine and Therapeutics, four in Midwifery, and three in Medical Jurisprudence.

Recent Literature

CRITICAL SUMMARIES AND ABSTRACTS

MEDICINE

By FRANCIS D. BOYD, C.M.G., M.D., F.R.C.P.,
Assistant-Physician to the Royal Infirmary, Edinburgh

IT is perhaps surprising that at the present day, when in many ways clinical pathology and diagnosis is so extensively and thoroughly carried out, so little attention should be paid to the examination of the stools. When the modern physician is confronted with a digestive trouble he will, if imbued with modern methods, reserve his opinion till the exact state of the gastric contents has been ascertained, after giving a test-meal. At the same time he will probably content himself with asking the patient or the nurse if the bowels are regular and the stools normal, and will accept the report given without further investigation. And yet when one considers how comparatively unimportant gastric digestion is, as compared with intestinal digestion, one cannot help concluding that, by omitting the entire examination of the stools, the physician loses much information which would be valuable alike from a diagnostic and therapeutic point of view. Adolf Schmidt,[1] in a

[1] "Die Functionsprüfung des Darmesmittels der Probekost," von Prof. Dr Adolf Schmidt, Wiesbader.

recent monograph, gives his experience and methods employed in recent years. In estimating the functional activity of intestinal digestion, he makes use of a diet which is persisted in for three days or over. The diet consists of:—

Breakfast.—½ litre milk, or if milk is not well borne, ½ litre cocoa (20 grms. cocoa, 10 grms. sugar, 400 grms. water, 100 grms. milk), 50 grms. rusk.

Lunch.—½ litre gruel (40 grms. oatmeal, 10 grms. butter, 200 grms. milk, 300 grms. water, 1 egg).

Dinner.—125 grms. minced veal, cooked with 20 grms. butter; 25 grms. potato broth, consisting of mashed potato, milk and butter.

Afternoon.—Milk and rusk, as at breakfast.

Evening Supper.—Gruel, as at lunch.

After the patient has partaken of this diet the second or third stool is examined. With practice the complete examination should not take more than ten minutes, and using suitable apparatus, is robbed of much of the expected unpleasantness.

After noting the consistency, colour and odour, the observer passes to the naked eye appearance, which is the most important part of the whole examination. For this purpose the stool is stirred up with a wooden spatula, and a portion, the size of a walnut, is taken, and placed in a glass vessel, and stirred up with distilled water to a fluid consistency. This must be thoroughly done. A quantity is then spread in the thinnest possible layer upon a flat black plate or flat glass vessel, and the appearance noted. Under normal conditions only exceedingly small particles of a brown colour are present, the remains of gruel and veal, or possibly of cocoa, which can eventually be recognised under the microscope. Under pathological conditions may be found:—

1. Mucus in larger or smaller flakes and particles. It is very little lessened by rubbing down. If in larger stringy particles, as in colitis, it is not difficult to recognise, but it must be remembered that if mixed with dead cells and fatty corpuscles it may lose its consistency, and take on a white to brown colour and buttery consistency. There is, however, no variety of mucus which cannot be recognised with the naked eye.

2. The remains of connective tissue and tendons of meat are of frequent occurrence, and can be recognised by their pale yellow colour, thread-like appearance, and hard consistency. Very rarely are small tendinous fibres found when digestion is normal. If they are numerous, it indicates a disorder of digestion, indeed, of gastric digestion.

3. Remains of muscle tissue appear as small brown splinters and little rods, and show muscle structure under the microscope.

Muscle fibres, when present, indicate a disturbance of intestinal digestion.

4. Remains of potato appear as sago-like, glassy, transparent granules, and can easily be mistaken for mucus, but have a rounded form and greater consistency, and can be differentiated by treatment with iodin.

5. Crystals of triple phosphate occur in foul stools.

The microscopic examination is carried out by placing three small portions on a slide. The first is covered with a cover-slip, and pressure used to obtain a thin film. The second is treated with a drop of 30 per cent. acetic acid, and heated over a spirit lamp. The third is treated with iodin-iodide of potash solution.

In the first preparation normally one will find detritus of bacteria, corpuscles, etc., rarely fragments of muscle fibre, larger or smaller yellow lime salts of the fatty acids, irregularly outlined yellow flakes scattered through the preparation, and uncoloured soaps, isolated potato-cells, rarely fragments of meal from the gruel, possibly cocoa remains.

The second preparation gives an idea of the total fat constituents. On cooling, small flakes of fatty acid are present over the whole preparation; the lime salts and soaps have disappeared.

The third preparation, which is coloured brown; the remains of potato have taken a violet colour, and a very few blue-violet fungus cells are present.

Under *pathological conditions*, on macroscopic and microscopic examination, mucus, if present, indicates an inflammatory affection of the mucous membrane of the intestine. There are only two exceptions to this rule. In constipation the hard, ball-like fæces may be covered with a waxy coating, which does not indicate catarrh of the rectum; and in the so-called mucous colic, where the mucus over-production so outruns the local changes as to differentiate the condition from an ordinary catarrh.

In considering the question of fat digestion, the test-diet does not give absolute proof. Even in starvation the stool contains fat, and in a normal stool 23 per cent. of the dried substance may be fat. As minor differences of fat absorption have no very great pathological significance, so weight can alone be laid on an extreme increase of the fat contents. This is, however, very easily recognised by the naked eye by the clay-like consistency and the skin-like formation on the outside of the stool during the rubbing down with water, and under the microscope by the marked increase of the fatty acid flakes in the heated preparation, and by the presence of neutral fat, fatty acid, and soap needles in the native preparation. Fatty stools occur when the

biliary secretion is diminished or inhibited from entering the intestine, in disturbances of pancreatic secretion, and as the result of impairment of intestinal digestion; but the later condition is rare, as fat absorption is, as a rule, not the first and most disturbed function in intestinal affections.

In the test-diet, if the veal be sufficiently minced and partly raw, one can establish the following rules and deductions on finding remains of flesh in the stool:—

1. If connective tissue fibres are recognised in the stool, it establishes a disturbance of stomach digestion. The gastric juice alone digests raw connective tissue; the stomach alone, therefore, bears the blame if connective tissue appear in the fæces. In marked achylea the connective tissue may appear through the whole stool as a finely-woven felt. Hastened gastric motility may play a rôle in the appearance of connective tissue in the stool.

2. If muscle remains appear to the naked eye in the stool, one is dealing with a disturbance of intestinal digestion. The major part of the digestion of muscle falls to the intestine, and if its functions be disturbed in any way, through faulty pancreas secretion, through increased peristalsis as in diarrhœa, muscle fibre appears in the stool. One cannot say definitely which function is disturbed, but only that the disturbance is in the small intestine, for the large intestine is only a reservoir in which the digestion of muscle cannot take place.

3. Connective tissue and muscle remains, either together or as flesh remains, indicate disturbances in which the stomach and small intestine share. One sees such in acute gastro-intestinal catarrh.

Carbohydrate.—The test-diet is so chosen that the milk, sugar, and rusk should leave no remains except in rare and severe disturbances of digestion. The potato broth serves also as a standard of the digestive power, the amount being so chosen that normally only a small quantity of empty potato cells can appear in the stool, the cells being coloured weakly violet with iodine. Faulty starch digestion has its site in the small intestine, and depends apparently for the most part on a disturbance of the secretion of the succus entericus.

Under chemical examination the author includes the reaction which normally is amphoteric; the sublimate test; the fermentation test; and the presence of soluble albumin.

The sublimate test is carried out by taking some of the dissolved stool in a small beaker filled with perchloride of mercury solution. The mixture is stirred and left for twenty-four hours. The normal stool will assume a red colour (hydrobilirubin). The fresher and less decomposed the stool, the more intense will

the colour be. Green-coloured particles, if present, are pathological, indicating the presence of unchanged bile pigment (bilirubin).

SURGERY

By HENRY WADE, M.B., F.R.C.S.,
Conservator of the Museum of the Royal College of Surgeons of Edinburgh

TO Bier of Bonn belongs the credit of having added the two most important recent contributions to the practice of surgery. They share in common this characteristic that they are both forms of treatment which, as that distinguished surgeon himself says, are pathologically unsound if the text-book dogmas are to be accepted as correct.

Ununited Fracture. The Treatment of False Joints and Delayed Union by the Injection of Blood (Bier, *Medizinische Klinik*, i. Nos. 1 and 2).—The basis of this form of treatment which Bier has successfully carried out is founded on the opinion which he holds that the effusion of blood which occurs at the site of a fracture is in reference to the repair of the bone to be considered as a factor of great two-fold value. According to Bier, of the two factors necessary for the growth of bone or for its regeneration, a stimulus and increased nourishment, it provides the former, and, at the same time, to a lesser degree the latter.

In the case of the growth or healing of bone, many observers have established the fact that an increased nourishment of the bone can be provided by passive hyperæmia, as witnessed in the increased growth, sometimes excessive, which is noticed in bone which, from a large variety of causes, has been subject to this influence. It has also been borne out in the successful treatment of ununited fracture by passive congestion according to Nicoladoni's method. The stimulus, however, is the most important factor, as "you cannot expect the tissues to fatten if they do not eat."

The reasons which induce Bier to consider the effused blood the chief stimulus to repair at the site of fracture are :—

1. With abundant effusion healing occurs readily.
2. Fractures which have been operated upon take longer to heal owing to the clearing out of the blood-clot and the careful arrest of hæmorrhage.
3. Compound fractures, even when aseptic, are slow to heal from a similar cause.

4. The development of Riders Bone after effusion of blood into the muscles and the production of ossification in hæmatomata.

In the blood we have therefore the natural stimulus, and one which is to be preferred to such chemical agents as Tincture of Iodine, Turpentine, or Alcohol, which act indirectly through the reaction which they induce leading to an increased vascularity of the part and increased nourishment. Even should the explanation of the rationale be considered unconvincing, the results obtained still justify the consideration of the treatment.

Ten cases were treated by Bier. Three of these were genuine cases of pseud-arthrosis, which were treated by the injection of blood 14, 13, and 14 months after the receipt of the injury. The remaining seven cases were, the fracture being more recent, considered as cases of delayed union. Firm osseous union was obtained in eight of his cases, in one very firm fibrous union occurred, and in only one case was the treatment unattended by improvement.

We will refer in more detail to the technique later, but here we may mention that it consists of the withdrawal of from 15 to 20 c.c. of blood from a vein in the patient's arm in a manner very similar to that employed for the bacteriological examination of the blood, and the immediate injection of it under the periosteum and between the ends of the bones at the site of fracture.

In six of his ten cases one injection was enough to lead to the establishment of firm osseous union in from 3 to 7 weeks. In the remaining three successful cases, 3, 3, and 5 injections were necessary before a cure was established after 3, 4, and 7 months respectively.

The class of case treated varied widely in reference to the bone fractured, the cause of the fracture and the age of the patient. Two cases of fracture of the femur, three of the tibia, two of the radius and ulna, and one of the clavicle were cured. It is interesting to note that four of these cases had been previously operated upon, and the ends of the fragments sutured together without success. The treatment was also carried out in the case of a boy aged 5, who had had arthrodesis of the knee-joint performed for infantile paralysis. Osseous union between the femur and tibia being absent three months after the operation, 15 c.c. of his own blood was injected, and the limb was put up in plaster of paris, and the boy sent home on the third day after the injection. In seven weeks firm bony ankylosis was present. The case where the treatment failed was one where 4 injections proved insufficient after 3 months to induce ankylosis in a knee-joint which had been excised 9½ months previous to the com-

mencement of the treatment. The age of the patients treated ranged from 5 to 60 years, the average age being 30 years.

It was Bier's practice, as mentioned already, to inject blood which had been drawn direct from the patient's own arm. In one case, however, he departed from this practice, with a result which is of particular interest. The case was one in which he had administered 2 injections of the patient's own blood with little benefit. On the third occasion he injected blood which he obtained from a healthy young man who had just recovered from a fracture of his femur. The effect of the injection was to speedily bring about an abundant production of callus and a speedy union.

The Reaction produced by the Injection is to call forth quickly at the site of the fracture an inflammatory reaction upon the part of the tissues; redness, swelling, heat, and pain are present. The increased local temperature is evident to the touch, and local œdema is seen. The reaction produced is very like that which follows the injection of tincture of iodine. If the bone treated be felt, it can be noticed how the coagulated blood has formed into a firm, hard ring, which gradually becomes transformed into callus.

The treatment is, of course, one which is not indicated in recent fractures, and although abundant effusion between the ends of the bones is, according to Bier, beneficial to union, he recognised that when effusion occurs into the adjacent soft parts, the indications for its removal by massage or similar treatment are in no way altered.

The Technique.—A strong 30 c.c. syringe is used by Bier to withdraw the blood from the vein, and to inject it into the place of fracture. To facilitate the former he has it constructed with the needle placed eccentric; and to enable it to withstand the great pressure necessary without leaking, in the latter case he has it constructed with a leather washer. Before each injection the efficiency of the instrument is tested by filling it with water and thrusting the point into a cork and then subjecting the contained fluid to powerful pressure. As the leather on the piston precludes sterilisation by boiling, the syringe is immersed in 1-20 carbolic lotion for twenty-four hours. Before use it is cleansed with normal saline solution, and if it is desired to retard coagulation of the blood, washed out with concentrated soda solution; this, however, is not essential. After the usual preliminary preparation, the needle is thrust into one of the prominent veins on the front of the patient's forearm, to which a fillet has been previously applied. From 15 to 30 c.c. of blood is withdrawn under aseptic precautions. The needle is then withdrawn and thrust under the periosteum, and the

blood injected at this site and between the ends of the fractured bones if possible.

The Treatment of Acute Suppuration by Passive Congestion (Bier, *Münchener medizin. Wochenschrift*, 52, Nos. 5, 6, 7).—To the orthodox the treatment of an acute infective process by passive congestion must certainly appear most heterodox. The use of Bier's method of passive hyperæmia for certain non-suppurative infective processes, such as tuberculous synovitis, is now accepted as an established form of treatment: the application of this form of treatment to acute infective processes is, according to Bier, the logical sequence of its successful use in the former cases. The inflammatory reaction which accompanies infection is, according to him, the manifestation of the tissues' endeavour to overcome the infection, and by increasing this beneficial process he maintains that he increases their power of resistance. For some time now he has been treating all cases of acute and subacute suppuration which come under his care by this means where it was possible to do so. In all, 110 such cases have been treated by him.

The treatment is, with certain minor modifications, similar to that with which we have been familiar in cases of tuberculous disease. It consists of the retardation of the blood return from the site of the lesion by the application of a constricting band upon the proximal side of the affected area. Several turns of an indiarubber bandage are wound round the upper part of the limb being treated. The bandage must not be applied too tightly, a relatively minor degree of constriction is sufficient in acute suppurative cases to achieve the desired effect. The part beyond the site of the disease is not bandaged. The whole limb becomes of a fiery red colour and œdematous. If the treatment is properly carried out it should be accompanied by an early lessening and disappearance of the pain accompanying the disease, and it should also not produce a blue colour in the limb. If the limb swells to a very marked degree, and becomes red and œdematous, no anxiety should be caused by this occurrence, since such is the desired effect of the treatment. Bullæ may appear over the inflamed area in certain cases. In an acute case, the bandage should be applied for at least 10 hours a day. In a severe case it may be applied for 20 to 22 hours. Each case must, however, be judged on its own merits.

As an illustration, the treatment of an early case of acute suppurative teno-synovitis by Bier was as follows:—The bandage was applied at 10 A.M., and kept on till 8 P.M. It was then reapplied at a slightly different level, and maintained in

apposition until 8 A.M. From 8 to 10 in the morning the bandage was dispensed with and the limb suspended. With the progress of the case the period of application gets gradually diminished. The care which is exercised in attaining the proper degree of compression during the first day of the treatment is, according to Bier, the important determining factor in deciding the success which will accrue. Instead of increasing the pain, as might be supposed, the application of the bandage alleviates it. In fact, it is a common occurrence to find the patient complaining of the return of pain in the interval during which it is dispensed with.

The passive hyperæmia may arrest infection before it has gone on to suppuration, or resorption may occur. When suppuration is present it is the rule, however, to find the amount of discharge increased at first. A cure is, however, more speedily brought about. Necrosis when present is more limited in amount, and the slough or sequestrum is more rapidly exfoliated by this means than by the usual method of free incision. In the numerous cases treated by Bier, a wide variety of conditions are included. In nine cases of acute infective osteomyelitis, with evident suppuration, four healed without necrosis, two with only slight necrosis, two led to serious necrosis, and one to death. Of thirteen cases of suppurative teno-synovitis, eight healed without necrosis, five resulted in necrosis of the tendons. The results of passive congestion in acute suppurative osteomyelitis and suppurative teno-synovitis were, however, not so outstanding, and did not bear comparison with those in which the method was used in commencing and subacute infective diseases and in suppurative diseases of joints. Still Bier believes that even in the former class of cases he has achieved results which until now have been unattained.

Four cases of pyæmic joint infection were treated by passive congestion. The treatment in each case brought about an immediate relief of the pain and a rapid disappearance of the remaining inflammatory phenomena, after a temporary increase in their severity. All the four joints healed so perfectly that the most careful observer could not detect the presence of any sign of previous disease. The longest time taken to restore the full function to the joint was nine days.

In recent years he has in severe cases of acute osteomyelitis and suppurative joint disease, with large abscesses, treated them by piercing with a large trochar the abscess as soon as suppuration was evident, or by making a small incision, and then washing out the cavity with normal saline solution; no drainage or tampon being employed.

The cases which did well were the cases which were obtained

early, those which gave poor results were the ones which came under treatment late, when the necrosis had already commenced; even then the treatment limited the necrosis, the passive congestion causing an increased nourishment to the devitalised limb.

The important point in the treatment which must be emphasised is that the bandage must be properly applied to get the desired effect. The engorgement must be very evident, but without inconveniencing the patients.

The application of the bandage must lessen the pain, not increase it.

OBSTETRICS

By R. G. M'KERRON, M.A., M.D.,
Physician to the Maternity Hospital, Aberdeen

THE PRESENT POSITION OF SYMPHYSIOTOMY

FEW operations have had so chequered a history as Symphysiotomy. Originated by Sigault over a century and a quarter ago, it seemed destined to replace Cæsarean section, at that time almost uniformly fatal; but it was soon discarded, owing to its high mortality, serious sequelæ, and more difficult technique. From time to time it has been revived, only again to fall into disrepute. In 1866 it was reintroduced by Morisani, of Naples, and to his persevering efforts we owe the fact that the operation has not again been permitted to lapse. In spite of much determined opposition, it has been slowly growing in favour.

For long, symphysiotomy was confined almost exclusively to Morisani and his immediate followers, but their success in time led a few well-known operators to turn their attention to the question. While some abandoned the operation after a short trial, others continued to operate, and with results so satisfactory as to lead them to the belief that in symphysiotomy we have a valuable method of treatment which will, in its own sphere, ultimately replace Cæsarean section.

Within the last few years there is evidence that the interest in symphysiotomy is increasing. At two successive meetings of the International Medical Congress the subject was considered, but though the discussion had the effect of bringing the question more prominently before the profession, it did little to advance the operation in general favour. Since that time, however, several important contributions to the subject have been made, and so many cases of symphysiotomy have been published as to

suggest that the time is opportune for a review of the whole evidence. In this summary an attempt will be made to determine, in the light of recent opinion and experience, the position and scope of the operation.

Symphysiotomy, it must be admitted, is still in its experimental stage, and further experience is necessary in order to determine its position, more particularly in relation to Cæsarean section. With the number of operators limited, experience accumulates slowly. The majority of obstetricians are still opposed to the operation. In this country it has never found favour; but a study of recent Continental literature will show that the operation is steadily gaining ground, and that the opposition to it, which till a few years ago was almost universal, is gradually becoming lessened. Evidences of this are given from recent German text-books by Velits (*Zentral. f. Gynäk.*, 1904, No. 46), who contrasts the earlier condemnation of the operation with the later more favourable views. Bumm, for example, states in his text-book (1903) that "In clinics, symphysiotomy will entirely abolish perforation of the living child in contracted pelvis, and may even displace the relative Cæsarean section." To this conclusion Velits himself has been led by his own experience. He believes that, sooner or later, symphysiotomy will relegate Cæsarean section to its original sphere—that of the absolute indication. In dealing with the question of symphysiotomy, Kézmárszky (1904) expresses the opinion that "when once its indications have been definitely determined, it will probably exercise an important influence on the indications for Cæsarean section as well as on craniotomy, and will bring to pass the long-looked-for time when perforation of the living child will be entirely banished from the list of obstetric operations." The latter claim alone is sufficient to force it on the attention of obstetricians.

Sufficient experience has now accumulated to show how far this favourable estimate is justified. In 55 symphysiotomies (1887-92), Morisani had a maternal mortality of 3.6 per cent., while Zweifel performed 35 consecutive operations without losing a single mother. His next 11 operations, however, showed 3 deaths. In Pinard's clinic, 100 operations were performed, with 12 deaths, but in at least 6 of these the fatal termination was the result of causes independent of the operation. Döderlein (*Archiv. f. Gynäk.*, Bd. 78) reports 9 cases of his own (4 of pubiotomy), and 15 cases of pubiotomy by other operators, all with a successful result. In a recent number of the *Zentralblatt f. Gynäkologie* (1904, No. 46), 5 successful cases are published by Leopold, and 3 by Velits. Ayers (*Amer. Journ. of Obst.*, vol. xxxvi.) operated on 8 cases, with 7 recoveries: in the case which proved

fatal the conditions were unsuited for symphysiotomy. In the *Transactions of the Obstetrical Society, Edinburgh* (vol. xxxvii.) will be found a series of 5 cases successfully performed by Dr Buist, while in the discussion on his paper 4 similar cases are mentioned. We have thus a series of 250 operations with only 12 deaths (excluding 6 of Pinard's), or a mortality of only 4.8 per cent. This will, no doubt, still further diminish with experience and improved technique, but, in any case, it is practically certain that had Cæsarean section been preferred, the results would have been less satisfactory, as not a few of the cases were operated on after futile attempts had been made to deliver with the forceps—circumstances in which Cæsarean section is admittedly a dangerous operation.

Various objections have been urged against symphysiotomy, but probably nothing has done so much to retard its advancement as the unfavourable impression created by the results of the earlier operations. It should be remembered, however, that during the same period Cæsarean section had an even greater mortality. But for the improvement in technique in the latter operation, which followed on the introduction of antiseptics, there can be little doubt that symphysiotomy would have occupied a much more prominent position.

In a valuable paper read before the XII. International Congress, Zweifel (*Monats. f. Geburts.*, Bd. vi.) examines the objections which have been urged against symphysiotomy. He maintains that all break down when put to the proof. In his opinion, the greater part of the mortality, as well as the more serious complications and sequelæ, result from faulty technique or from operating in unsuitable cases.

An objection frequently raised is that many patients after symphysiotomy experience permanent difficulty in walking. That this can be avoided is seen from Zweifel's cases, in every one of which there was restoration of the function of the pelvis, usually complete, but at any rate sufficient for all the requirements of life. Where delay or difficulty in walking does result, Zweifel agrees with Neugebauer that it is due to injury of the sacro-iliac articulations, which occurs only when the operation is performed in too narrow a pelvis. From a comparative estimate of the after-effects in the cases of Cæsarean section and symphysiotomy operated on in the clinic at Leipzig, Abel states that the ultimate recovery, in so far as capacity for work was concerned, was equally good for both operations.

It is also urged against symphysiotomy that the recovery is protracted. While Abel's analysis tends to support this view, Zweifel found that, when the circumstances at the time of operation were the same, the convalescence did not appreciably differ

from that in Cæsarean section. He insists that, in making a comparison between the two operations, cases complicated by infection should be excluded, and only those considered which can be fairly compared. Some of his patients were able to get up on the seventeenth day, and most were out of bed by the end of four weeks. Ayers' experience was similar. His patients left hospital in from four to six weeks after operation.

A more serious objection, which Zweifel does not allude to but which probably in many cases accounts for the rejection of symphysiotomy in favour of Cæsarean section, is the more exacting nature of the after-treatment. From his experience in this respect, Jardine states that "he would rather treat half a dozen Cæsarean sections than one symphysiotomy." Even when the pubic bones are sutured, the greatest care is required to insure satisfactory union. Till that is accomplished, constant supervision on the part of the operator is necessary. The wound, too, demands greater attention than after Cæsarean section, while the continuance in a fixed position, which is necessary to prevent separation of the bones, is very irksome to the patient. Still, these difficulties should not be permitted to weigh against a diminished mortality.

A further objection is to be found in the greater technical difficulty of the operation and in the danger of excessive hæmorrhage. It will not be denied that symphysiotomy demands considerable operative skill, and that the difficulties to be encountered are greater than in Cæsarean section. The hæmorrhage may be alarming and troublesome, but where the operation is properly performed, it is, in Zweifel's experience, no greater than in the Cæsarean operation, and, further, is very easily controlled. All that is necessary to arrest the bleeding is to pack the front and back of the symphysis with gauze, to press the two innominate bones together and exercise counter pressure from the vagina. Buist doubts whether, even when considerable bleeding takes place from the incision, it is ever necessary to plug the wound. Mere compression till the pelvis is bandaged would probably control the bleeding.

While, then, the objections to symphysiotomy largely break down on examination, the continued preference for Cæsarean section can be readily explained. It has certain obvious advantages. Besides being a technically easier operation, it completes delivery and, being independent of the degree of pelvic contraction, avoids possible errors in the calculation, not always easy, of the relative size of fœtal head and pelvis. If symphysiotomy had no counter-balancing advantages, it must yield to the simpler operation, but several important advantages are claimed for it. (1) It can be performed with less assistance than

Cæsarean section, and with the ordinary armamentarium of the practitioner. (2) Its general mortality is probably less; in symphysiotomy only external wounds are made, hence it is less likely to prove fatal should infection occur. (3) After attempts, more or less prolonged, have been made to deliver with the forceps, it is a safer alternative to craniotomy than Cæsarean section. Cases where the forceps seems to offer a chance are of frequent occurrence in practice; indeed, as Ayers points out, "where we have one case of sharply contracted pelvis, absolutely indicating Cæsarean section, we have twenty that are on the borderland between forceps and symphysiotomy." (4) Symphysiotomy often effects a permanent enlargement of the pelvis sufficient to permit of subsequent, sometimes spontaneous, delivery, as is shown in the history of many of the cases. This is the strongest argument in favour of a more extended employment of the operation. (5) In his paper already referred to Abel has noted a further advantage which symphysiotomy possesses as compared with Cæsarean section. After the latter the patient, during a subsequent pregnancy, frequently suffers from pain and discomfort due to the existence of uterine adhesions, and is liable to several more or less serious accidents. After symphysiotomy, pregnancy runs its course without the slightest disturbance.

If experience serves to confirm these claims, symphysiotomy will not only merit a permanent place among obstetric operations, but should, as Zweifel, Döderlein and others believe, entirely replace Cæsarean section in the lesser degrees of pelvic contraction.

PSYCHIATRY

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CEREBRAL LOCALIZATION, AND THE CORRELATION BETWEEN BRAIN FUNCTION AND CORTICAL STRUCTURE

FLOURENS, in 1842, from his experiments on the removal of the cerebral hemispheres in animals, concluded that there was no localization of function in the higher brain, and the influence of his teaching persisted for thirty years. However, Broca's famous discovery in 1861, followed by the teachings of Hughlings Jackson in 1864, and of Charlton Bastian in 1869, led the way to the experiments of Fritsch and Hitzig in 1870, and of Ferrier in 1873, which established motor cerebral localization as an indisputable fact, and the later experiments of the nineteenth

century were devoted to the working out of the details in various animals. Up to this time the only anthropoid ape experimented upon had been an orang by Beevor and Horsley, who, employing the method of faradic stimulation, found that the "motor area" was not as in the monkey a continuous excitable area, but was here and there inexcitable, and that the excitable motor area was relatively smaller in the orang, and indeed was limited to the lower two-thirds of the ascending parietal gyrus, the ascending frontal gyrus, the adjoining part of the marginal gyrus, and an isolated area for eye movements in front of the precentral fissure of the frontal lobe. They also found that in the orang, as distinguished from the monkey, much stronger excitations were required to produce movement, and that the tendency to the epileptiform "march" of movements by stimulation at one point was much less marked. In man the experimental methods had naturally been restricted in application, consisting in excitations of limited areas of the cortex exposed during operations, but the findings were held to be in general agreement with those in the monkey and orang. Schäfer's chapter on "The Cerebral Cortex" in the second volume of his "Text-Book of Physiology" (Lond. 1900) may be taken as the authoritative statement at the end of the nineteenth century as to the general results of the experimental methods on motor cerebral localization. He says that the experimental results in man, "so far as they go, agree with those in the orang and monkey." But in man and the orang a much stronger faradic current is required to produce the movements than in the monkey, and as the cortex is much thicker in man and the orang than in the monkey, this apparently indicates that the movements "are caused by excitation, not of the superficial, but of more deeply lying parts of the cortex." Further, the gyri are more excitable near their summits than near their bounding fissures, and the production of epilepsy by electrical stimulation is more difficult in man and the orang than in the monkey, and becomes progressively easier in lower animals (*e.g.* dog and rabbit) according as they descend in the scale of intelligence. As regards, again, the clinical evidence on the motor area in man, Schäfer says that the general results of very many observations "show that the motor zone in man includes only the convolutions adjacent to the fissure of Rolando, namely, the ascending frontal, the ascending parietal, the paracentral lobule, and the Rolandic operculum. . . . The motor area in man does not include Broca's convolution, *i.e.* the base of the third frontal gyrus, lesions of which, although productive of defects of speech, do not produce paralysis of the organs of speech (larynx, tongue, etc.)." He, however, states that the

motor area, namely that part of it which has to do with the conjugate movements of the eyes and head, includes the base of the second and third frontal gyri. As to the less definitely known *sensory areas* of the cortex, Schäfer refers to the view held by certain neurologists that the Rolandic or motor area is also the centre for the sense of movement or muscular sense; he cites experimental evidence in support of the view that the gyrus fornicatus on the mesial surface is the centre for tactile or cutaneous sensibility, but is evidently not altogether satisfied on this point; he is inclined with Ferrier to locate the centre for smell at the hippocampal and uncinate gyri, and the centre for taste close beside it, at the antero-inferior portion of the temporal lobe; he locates the centre for hearing at the temporal lobe (at least), especially the first and second gyri, on the outer surface, the upper part of the first temporal gyrus and the transverse gyrus of Heschl within the Sylvian fissure being the focal point of the auditory centre, and the first temporal gyrus on the left side being the centre for the appreciation of words heard; and finally he gives his support to that view which locates the centre for sight at the occipital lobe, especially its mesial surface (cuneus), and particularly the lips of the calcarine fissure, the anterior portion of which, with Henschen, is regarded as the focal point of the visual centre, the rest of the occipital cortex [and (?) the angular gyrus] on the left side containing the centre for the interpretation of words seen. As to the remaining *latent or associational areas* of the cortex, forming about two-thirds of the entire pallium and consisting of the prefrontal or anterior, parieto-occipito-temporal or posterior, and insular association areas of Flechsig, Schäfer refers to the well-known views of the latter authority, pointing out that as we ascend the mammalian series, the projection areas, "sensory" and "motor" (all are "sensory" according to Flechsig), become relatively smaller, and the association areas gradually larger; that the latter exhibit "marginal zones" which are adjacent to the projection areas (from which they receive countless association fibres), and are largely concerned in storing up the memory of "sensory" impressions; that the association areas are severally connected by numberless association fibres with the various projection areas, which are thus brought into communication with one another; that the association areas present a more or less uniform five-layered type of cortical structure, whereas the projection areas exhibit characteristic local variations; that extensive destruction of the "latent" areas, especially bilateral, leads to inability to appreciate sensory impressions, to loss of memory, and to diminution or loss of the intellectual faculties. In short, the central associa-

tion areas are the centres of higher psychical activity. Finally, Schäfer refers to Meynert's view of the insula as a special association area for language, and indicates that there is no sufficient evidence in favour of the view of a special localization of the intellectual faculties in either the anterior (frontal) or the posterior (parietal) association area of the brain, but rather that the mental activities "are apparently bound up with the integrity of the whole organ." The preceding statements, then, may be regarded as the generally accepted views in 1900 of the localization of functions in the cerebral cortex of man.

During the past four years important papers have appeared advancing our knowledge of cortical function and structure, and we may be said to be at last within sight of a proper anatomico-physiological basis upon which to rear with more confidence our studies of sensation, motion, and mentation, and our understanding of cortical diseases and mental affections.

In 1901, Sherrington and Grünbaum (*Proc. Roy. Soc.*, vol. lxix.) made some very significant experiments and observations in the chimpanzee, which is higher than the orang in brain development, and in the gorilla, which is higher still and comes next to man. They found that in these animals the excitable motor cortex was entirely in front of the fissure of Rolando, being represented mainly by the ascending frontal or precentral gyrus, though its anterior boundary was variable and could not be demarcated by any definite fissure. Further, the fissures of the brain generally were so variable in the different chimpanzees employed (there were ten of them, and one gorilla, and one orang), and even on the two hemispheres in the same animal, that the sulci could not be taken as the boundaries of the areas of the various "motor" centres, whose functions accordingly could only be ascertained by electrical stimulation. They also found that a centre for the trunk (abdomen and chest) was interpolated between the leg and arm centres, and a neck centre between the arm and face centres; that the various centres for the leg, trunk, arm, neck, and face from above downwards were separated by inexcitable intervals, and that the motor area as a whole was relatively smaller in the chimpanzee than in the orang. They found, however, that no greater strength of current was required to produce movement in the chimpanzee than was necessary in the monkey or in the cat, and that in certain of the animals employed, epilepsy could be produced. Sherrington and Grünbaum confirmed their results, as obtained by electrical stimulation, by the crucial tests of ablation experiments, followed by microscopic study of the spinal cord for descending degenerations, excisions of areas being followed by monoplegias and subsequently by pyramidal spinal degenerations only in

those cases in which the ablation areas were in front of the fissure of Rolando, and never in those cases in which the excised areas were behind the Rolandic fissure. The main significance of their discovery—the last important one so far by experimental methods, and as will have been seen, partially anticipated by Beevor and Horsley in the orang—consists in the fact that in the highest anthropoid apes, and presumably in man also, the "motor area" lies entirely in front of the fissure of Rolando. The history of the experiments on cerebral localization indicates that in the unique case of the brain, which organ of all others essentially characterises the *homo*, trustworthy results, for the purposes of their application in practical medicine and surgery, are obtainable amongst animals only from that animal which comes nearest to man.

Beevor, in the Croonian Lectures of 1903 on "Muscular Movements and their Representation in the Central Nervous System" (*Lancet*, June 1903), after giving an elaborate analysis of many muscular actions, concluded that in every simple voluntary movement a definite minimal number of muscles, usually two or more, came into action in a definite order during the production of the movement, and that the movement could not be performed with less than this minimal combination of muscles, which he therefore called the minimal, or ultimate, components of the movement; *e.g.* in extension of the proximal phalanges of the fingers on the metacarpus, the minimal components are the extensors of the fingers and the flexors of the wrist. Further, that as regards the representation of the ultimate components of these movements in the nervous system, following Hughlings Jackson's teaching of the representation of movements at the three levels, he showed that the movements produced by stimulation of the excitable cerebral cortex (second level) were co-ordinated and synergic in character, that the brain cortex therefore contained mechanisms for the co-ordination of movement, and that only co-ordinated movements were represented in the excitable cortex; that the grey matter of the spinal cord (lowest level) contained mechanisms for the co-ordination, both of simple movements stimulated by impulses coming from the excitable cortex down the pyramidal track, and of reflex movements, obtained by stimulation of the posterior nerve roots and the skin, and that it was uncertain whether the same mechanism served both for these simple and for these reflex movements; and, finally, that as all complex and intricate movements were just combinations of the simple movements in various orders (*e.g.* walking, golfing, violin playing, etc.), and have to be learnt in response to the various visual, auditory, or other sensory impressions concerned, and become in time auto-

matic, their representation, nevertheless, is in the brain, and not in the spinal cord, for they are lost in brain lesions.

J. S. Bolton ("The Functions of the Frontal Lobes," *Brain*, Summer 1903) has made a series of valuable observations on the naked eye anatomy of the cerebrum in mental diseases, and on the histology of the cortex in normal and in insane subjects, studied by the method of serial sections and micrometric measurement of the cell layers, and has been led thereby to draw conclusions as to the functions of the frontal lobes, namely, the region in front of the "psychomotor" area. As to the functions of the latter region, Bolton dissents from the view that it is "purely motor, or at most psychomotor," or concerned merely with the executive performance of skilled voluntary movements; and from the view that it is sensori-motor, or sensory, or concerned with the primary reception of the afferent impressions of the sense of movement, or kinæsthesia, coming from muscles, tendons, joints, fasciæ, and skin. Reasoning partly by analogy from his researches on the visual area, namely his differentiation of the latter histologically into a "visuo-sensory" area for the primary reception of visual impressions, and a "visuo-psychic" area for the higher elaboration of these impressions, and from the relationship of the visual area to the great posterior association area of Flechsig, he regards the psychomotor area as the lower associational area for kinæsthetic impressions, and the forerunner of the great anterior association area in the prefrontal region.

As to the functions of the prefrontal, or anterior association area, Bolton states that the evidence, both of experimental physiology and of clinical medicine, is very conflicting, but considers that his own observations justify his conclusions that "gross mental disabilities" are correlated with changes in the anterior or prefrontal association centre, rather than in the posterior or parietal centre, and that the great anterior centre of association is the region of the cerebrum, which is primarily affected in mental diseases.

Bolton's observations are as follows:—

A. Morbid Anatomy of Mental Diseases.—The amount of cerebral wasting and associated changes inside the cranium met with in insanity vary directly with the amount of dementia, this relationship being especially well marked if there has been time before death for the more or less complete renewal of the products of degeneration. *The regions of wasting*, in several hundreds of cases (uncomplicated by local or general atrophies of traumatic or vascular origin) are, in order of intensity:—(1) Prefrontal, or anterior two-thirds of first and second frontal gyri and adjacent mesial surface, and anterior

one-third or so of third frontal gyrus. (2) Posterior one-third of first and second frontal gyri. (3) Posterior one-third or so of third frontal gyrus, or Broca's centre, and the ascending frontal gyrus. (4) Insula and first temporal gyrus, and the superior and inferior parietal lobules (the two latter being usually less wasted than the two former); in many cases the wasting in "4" is more marked than that in "3." (5) Rest of cerebrum, including the orbital surface of the frontal lobes; the wasting is least marked in the occipital lobes and basal surface of the temporal lobes. In pure cases of mental under-development (that is, not due to traumatic or vascular lesions) the first and second above-mentioned regions are those usually wasted, and in the order stated, but small brains with simpler gyri are more common. In general paralysis, in which wasting may be very slight in acute rapid cases owing to incomplete removal of degeneration products, whereas in chronic cases it may be more marked than in severe dementia due to senility or to gross vascular disease, the order of the regions of wasting is:—(1) Prefrontal, or anterior association area [see (1) above]. (2) Posterior association area [see (4) above]. (3) Psychomotor area (posterior one-third of the first, second, and third frontal gyri, including Broca's centre, and the ascending frontal gyrus), this being markedly wasted if there have been many convulsive seizures. And least of all, (4) the visual projection area.

B. General Histology (normal and morbid) of the Cortex Cerebri.—These observations were made on the prefrontal cortex, at the same point in all cases, namely, at the second frontal gyrus at right angles to the (constant) transverse fissure of Wernicke, and on the occipital or visual cortex. In the adult the cerebral cortex in the regions of Flechsig's association centres consists of five layers:—

1. The superficial, essentially a layer of nerve-fibrils, but contains also a few nerve-cells.
2. The layer of pyramidal cells, or pyramids.
3. The layer of granule cells, or granules.
4. The inner line of Baillarger, essentially a layer of nerve-fibrils, but contains also nerve-cells having a somewhat pyramidal shape; but, according to Bolton, these are not "pyramidal cells" at all. In certain regions, for example the psychomotor area, they are represented by the giant cells of Betz (the ganglionic cells of Bevan Lewis); and in other regions, *e.g.* occipital cortex, by the solitary cells of Meynert.
5. The layer of polymorphic cells.

During development the layers of the cortex are laid down in order from within outwards, that is from the fifth layer inside

to the first layer on the surface. As to these layers in the prefrontal region, Bolton says:

(*a*) *Fifth layer, of polymorphic cells*, appears about sixth month of fœtal life; is then nearly three-fourths of its adult depth; at birth is more than three-fourths of its adult depth; in the adult is of constant depth in different individuals; in amentia presents degrees of under-development, and in dementia is the last layer to exhibit retrogression. In extreme aments (congenital idiots and imbeciles) and in dements unable to attend to their simplest wants, this layer is decreased, and so "probably subserves these lower voluntary functions of the animal economy."

(*b*) *Fourth layer*, or inner line of Baillarger, also appears about the sixth fœtal month, being then about three-fourths of its adult depth, at birth more than three-fourths of its adult depth, and in the adult of constant depth in different individuals. In amentia and dementia it is decreased. In the psychomotor region the giant cells constitute the origin of the efferent tract for skilled voluntary movements, and probably the solitary cells in the occipital cortex and the cells of the fourth layer in other regions have some similar efferent function.

(*c*) *Third layer of granules* appears after the preceding layers; is at the sixth month of fœtal life about half its adult depth; is at birth three-fourths of its adult depth, and in the adult is of constant depth. In amentia and dementia it is decreased. In the primary visual area it is hypertrophied and reduplicated, and receives the endings of the optic radiations, and so it probably subserves the primary reception and transformation of afferent impressions, whether from the sense-organs or from other parts of the cerebrum.

(*d*) *Second layer of pyramids.* The pyramidal layer, (1) *in the prefrontal cortex*, appears after the third layer; is at the sixth month of fœtal life about one-fourth of its adult depth; is at birth about half of its adult depth, and in the adult *is the only layer of the cortex which varies in depth* in different individuals. Like the third, fourth, and fifth layers, it presents degrees of under-development in congenital idiots and imbeciles, but also in chronic and recurrent insanity without dementia, in which conditions the third, fourth, and fifth layers are practically unaffected, being of the normal adult depth; and in dementia and general paralysis the layer of pyramids is decreased. In mental diseases generally the pyramids are the cortical cells which are most affected. In dementia and general paralysis the wasting, or, in other words, the retrogression of the various layers of the cortex, varies directly with the amount of dementia present, and the latter varies especially with the thinning of the pyramidal layer. Both at birth, when mentation is about to begin, and at

death with advanced dementia, when the patient is mindless and helpless as the new-born babe, micrometric measurement shows that the layers of the prefrontal cortex are remarkably similar in depth. (2) *In the visual cortex.* The pyramidal layer is developed earlier in the "visuo-sensory" or projection centre than in the "visuo-psychic" or association centre, being at almost its adult depth in the visuo-sensory cortex of the infant of one month; whereas in the visuo-psychic cortex it is less than two-thirds of its adult depth at the first month of infant life, and even at the third month is still much below the adult depth, and finally in the adult it becomes nearly twice as thick as the pyramidal layer of the visuo-sensory cortex, and reaches the same thickness as in the prefrontal area. *These facts prove that the pyramidal layer in the visuo-psychic cortex has an associational function,* and agree with Flechsig's discovery that the fibres of the primary visual area myelinate earlier than those of the surrounding cortex. Again, in dementias of varying degrees, in which the degrees of dementia were found to be correlated with corresponding diminutions especially of the pyramidal layer of the cortex in the case of prefrontal region, in the case of the visual cortex the decrease of the pyramidal layer was slight, and much the same in all cases, not varying with the amount of dementia, and it was just as much decreased in the visuo-psychic as in the visuo-sensory area, and therefore, relatively to its depth in the two areas, was more decreased in the latter. The pyramidal layer, therefore, subserves the associational or psychic functions of the cerebrum, especially in the prefrontal region; less so in the visuo-psychic region, and least of all in the visuo-sensory region.

(*e*) *The first or superficial layer of fibres,* with its relatively few cells, appears about the same time as the pyramidal layer, and probably has associational functions also.

Such, then, are Bolton's observations. The important points of the paper are his observations that (1) in the visual cortex the pyramids are developed later in the association centre than in the primary or focal visual centre; (2) that they are consequently correlated with associational functions; (3) that the pyramidal layer in the "visuo-psychic" area becomes almost twice as deep as that in the "visuo-sensory" area, and (4) practically the same depth as that in the prefrontal region; (5) that the pyramidal layer in the prefrontal region is the only layer which varies in depth in normal adults; (6) that the degree of its development in the prefrontal region in normal fœtuses, infants, and adults, and in the abnormal conditions of congenital idiocy and imbecility, varies directly with the mental power of the individual; and (7) that in dementia and general paralysis the

degree of its retrogression varies directly with the amount of dementia; (8) hence the justifiable conclusion that the pyramidal layer of the cerebral cortex subserves the higher associational or psychical functions of the brain.

So far the writer feels in agreement with Bolton. Bolton, however, considers that he is justified in going further, and so finally concludes that the prefrontal region or "anterior centre of association of Flechsig is the region of the cerebrum which is concerned with the performance of the highest co-ordinating and associational processes of mind." Bolton would thus tend to locate the mental faculties rather in the anterior than in the posterior association centre. It may be that such "high" mental activities as inhibition, control, volition, and attention have their "seat" specially in the anterior centre, but there is abundant evidence in favour of the view that the posterior centre also is the "seat" of "high" mental faculties, such as constructive imagination, ideation, and similar more intellectual processes which characterise the thinkers of the race. Bolton's histological observations cover (1) the prefrontal or highest part of the anterior association centre, (2) the visuo-sensory area (a projection centre), and (3) the visuo-psychic area (a lower associational centre—that is, a "marginal zone" of the posterior association area). They do not appear to have been based on a direct histological examination of the "highest" or central part of the posterior association area in the parietal lobe. It may not therefore be safe to base conclusions as to the seat of highest mental activity without comparing the histology of the parietal centre with that of the prefrontal centre.

Again, the marked wasting in the prefrontal cortex in mental diseases, compared with the slight wasting in the occipital and temporal lobes, may not be a proof of higher associational or psychical activity in the former, for other explanations are possible. For example, the areas which myelinate late, as the prefrontal, may tend to retrogress and lose their myelin sooner than those which myelinate earlier, as the psycho-sensory areas or marginal zones and the primary sensory areas, which myelinate earliest of all; and the latter may tend to persist, because, so long as the peripheral sense-organs remain effective, the sensory areas continue to be directly subject to the trophic influence of the constant stream of afferent impressions coming from the environment, whereas the central portions of the association centres receive these impressions only second-hand. For the same reason the posterior or parietal association centre, which lies surrounded by the sensory areas, and so is in more intimate touch with the afferent trophic stimulation from without, may tend to retrogress less than the

prefrontal centre, which is, as it were, more beyond the pale of afferent stimulation.

A. W. Campbell ("Histological Studies on the Localisation of Cerebral Function," *Journ. Ment. Science*, Oct. 1904), by the method of serial sections, has studied the form and arrangement of the medullated fibres and the local variations in the cell-layers of the human cerebral cortex in the normal adult, and also in cases of deprivation of senses, amputation of limbs, tabes dorsalis, and amyotrophic lateral sclerosis, and he has similarly studied histologically the cortex of the chimpanzee, orang, and lower animals. He differentiates between two main varieties of brain-centres: (1) the "primary" centres, for sensation (common and special) and movements common to all animals and necessary for their survival; and (2) the "higher evolutionary" centres, for complex psychic functions, in which man excels.

Campbell claims that his histological researches render possible a more accurate survey of the brain surface than has hitherto been attained, and a better understanding of cerebral homologues. First of all, the floor of the fissure of Rolando in man forms a sharp dividing line histologically between motor cortex in front and sensory cortex behind. The Rolandic fissure of primates (man, chimpanzee, and orang) is represented in lower mammals (*e.g.* cat and dog) by two fissures—the "coronal" fissure laterally and the "compensatory ansate" fissure dorsally, in front of which is the "gyrus sigmoideus" (motor), and behind which is the "gyrus coronalis" (sensory); whereas the "cruciate fissure" of lower mammals, which is generally regarded as the homologue of the Rolandic fissure of primates, is entirely in the motor area, and is represented in the latter by a small fissuret on the oval or paracentral lobule of the marginal gyrus just below and in front of the upper end of the fissure of Rolando on the mesial surface of the hemisphere (*Rev. Neur. and Psychiat.*, Jan. 1905). Campbell's survey of the cortex in front of the Rolandic or central fissure is as follows, passing from behind forwards.

1. *Pre-central area, or ascending frontal gyrus*, corresponds to the "motor area" of Sherrington and Grünbaum, is mainly characterised histologically by the "giant cells" of Betz ("ganglionic" cells of Bevan Lewis), and is the "primary" motor centre for automatic movements, for example, those of progression, and in this connection its giant cells are more abundant in the leg area than in the arm area in man, whereas in quadrupeds they are more equally distributed. This area corresponds to Hughlings Jackson's "second level." To the naked eye the ascending frontal gyrus presents a thicker grey pallium and a plumper white core than the ascending parietal

gyrus. In seven cases of amputation of limbs the giant cells of the central gyri showed degenerative changes similar to those described by Marinesco in the anterior cornual cells after section of the spinal motor nerves. In two typical cases of amyotrophic lateral sclerosis (a system disease of the motor neurons and muscles), the cortical changes were confined to the precentral gyrus, and consisted essentially in a destruction of the giant cells of Betz.

2. *Intermediate pre-central area* includes (*a*) Broca's centre for speech, (*b*) the "cheirokinæsthetic" centre for writing, and (*c*) centres for equivalent skilled movements of the upper and lower limbs. This area corresponds to Hughlings Jackson's third or highest level for the most complex movements. The intermediate precentral area of Campbell is the centre for skilled or "higher evolutionary" movements, and its anterior boundary corresponds to the front limit of the "psycho-motor" area of Ferrier, Bevan, Horsley, and Schäfer, and to that of Flechsig's great central projection sphere.

3. *Frontal area* is structurally weaker in nerve cells and nerve fibres than the preceding areas, but in man it is relatively more developed than in the higher apes, and so it is probably the seat of higher psychic functions. The frontal area of Campbell corresponds to Flechsig's anterior centre of association [(?) or to its "central zone"], and in dementia, especially in that of general paralysis, it is much atrophied, but Campbell considers that this atrophy is not necessarily evidence of the frontal area being a higher association centre, as it may be explained by its "being built up on an extremely weak and collapsible framework of nerve-fibres," not a very convincing explanation in view of the supposed important function of the area.

4. *Prefrontal area* is demarcated from the frontal area not abruptly, but by an indefinite line, and is characterised by extreme poverty of nerve cells and nerve fibres, by its being entirely inexcitable, or irresponsive to electrical stimulation, and in its being capable of complete removal or destruction without giving rise to any permanent effects or symptoms. Campbell consequently concludes that it is the last part of the pallium to appear in phylogenetic progress, that its evolution is incomplete, and that it is simply a part of the cortex "with a future."

Passing now to Campbell's survey of the cortex behind the central or Rolandic fissure, we find that he recognises the following areas:—

1. *Post-central area, or ascending parietal gyrus*, is regarded by Campbell as a "primary" sensory centre for the recognition of the simplest components in common sensation, *e.g.* pain and heat. It might thus be called the algesic and thermal area.

Its fibres myelinate early, like the sensory fibres of the cord, and they are continuous with the fibres of the cortical lemniscus or cerebral continuation of the main sensory system of fibres. It is, indeed, the end-station for the cortical lemniscus. In three pure cases of tabes dorsalis (essentially a system disease of the sensory neurons) there was found to be a destruction of the larger pyramidal cells and a general disturbance of the cell lamination, limited to the ascending parietal gyrus, especially to that part of it forming the wall of the fissure of Rolando.

2. *Intermediate post-central area* of Campbell, regarded as the centre for the recognition of the higher components in common sensation, *e.g.* tactile and pressure impressions coming from the skin, muscles, fasciæ, tendons, and joints. It might thus be called the centre for the astereognostic and muscular senses.

3. *Parietal area* of Campbell, a large area of the parietal occipital and temporal cortex, corresponding to Flechsig's great posterior association centre, and lying surrounded by the sensory areas, being bounded in front by (1) and (2) the areas for common sensation just mentioned, behind by (4) the visual area, below by (5) the auditory area, and on the mesial and lower aspects of the hemisphere it surrounds posteriorly the (6) olfactory area, and (?) (7) the gustatory area. There is practically no "parietal area" in the pig (an animal of specially low intelligence), a small "parietal" area in the more intelligent dog, a relatively larger area in the orang, a still larger one in the chimpanzee, and relatively the most highly developed "parietal" area in man. Hence Campbell concludes that the "parietal" area is the seat of higher psychic functions, namely for the elaboration and interpretation of sensory impressions out of which consciousness arises. In three idiots' brains Campbell found microgyria of the "parietal" and "frontal" areas, indicating that there had been an under-development of these areas which are latest in phylogenetic growth.

4. *Visual area* at the occipital pole of the hemisphere includes two histologically distinct areas: (*a*) visuo-psychic, for the elaboration of visual impressions; it surrounds the (*b*) visuo-sensory, the "primary" centre for the reception of visual impressions which occupies the territory of the calcarine fissure and extends to the lateral surface at the pole of the hemisphere, and exhibits to the naked eye on section the well marked line of Gennari about the middle of the grey cortex. Mott, in his recent Bowman Lecture (*Lancet*, 3rd December 1904), has worked out the correlation between structure and function in the visual cortex of mammals, and shows how there is a progressive complexity in the cell lamination as we pass from nocturnal insectivora such as the mole, shrew, and hedgehog, to man with

his perfect binocular stereoscopic vision. The visuo-sensory region is characterised by a broad line of Gennari lying between an inner and an outer layer of granules, and beyond the latter a double layer of small and medium pyramids; the visuo-psychic region is characterised by the great depth of its pyramidal layer, due to the addition of a third row of large associational pyramids.

5. *Auditory area*, in the temporal lobe, similarly includes (*a*) the audito-psychic area, for the elaboration of auditory impressions (*e.g.* the word-hearing centre), which embraces (*b*) the audito-sensory area, or transverse temporal gyri of Heschl in the Sylvian fissure, this being the "primary" centre for the reception of auditory impulses.

6. *Olfactory area* and (7) *Gustatory area.* The centres for these less "psychic" centres are not so well defined, but Campbell locates the gustatory area at the Island of Reil, lying deeply at the beginning of the Sylvian fissure, and itself more or less "insulated" by a fissure; while the olfactory area on the mesial and basal surfaces of the hemisphere includes more or less of the limbic lobe, namely the "pyriform" lobe (the uncus and uncinate gyrus close to the dentate fissure), and probably the rest of the gyrus hippocampi, and the gyrus fornicatus. Campbell considers that there is no histological evidence to support the view that the gyrus fornicatus is a centre for cutaneous sensation.

If Campbell's observations are confirmed, they obviously advance the discoveries of former investigators, render cerebral localization much more precise, and so should greatly facilitate progress in the pathology of cortical lesions and mental affections.

New Books and New Editions

Therapeutique des Maladies de la Peau. Par le Dr LEREDDE. Paris: Masson & Cie. 1904.

THE French Dermatological stage usually has one prominent figure who for the time being attracts to himself a large part at least of the attention of the audience. A few years ago it was M. Sabouraud, who by his brilliant work on Ringworm and other parasitic diseases filled this rôle; now it is occupied by the author of the work under consideration. It seems only a year or two since we first heard the name of Leredde, and already he is the author of a list of publications that a veteran might be proud of, in addition to being the editor and main contributor

of the *Revue pratique des Maladies Cutanées*, &c., a little monthly journal of considerable practical value.

There is a freshness about M. Leredde's writings which is a welcome relief from those older books which were too much mere repetitions of the views of their predecessors.

The style of the volume may be gathered from the first sentence of the Preface: "I do not know if Therapeutics will ever be a science; it is certainly not one to-day." It is well for M. Leredde that there is no House of Lords in France, for the manner of his references to "the belief in diatheses, *i.e.* troubles hereditary or acquired, indeterminate in their essence, and the attribution of all dermatoses of unknown origin to the nervous system," is, for a Dermatologist of the Paris School, the very rankest of heresy. The Preface contains other pertinent phrases with which we find ourselves in cordial agreement, such as, "the student need not learn by heart ready-made formulas which he employs almost at random," and "I believe that one of the difficulties of Dermatology is the number of remedies employed."

The methods of treatment are divided in a somewhat novel way into aseptic, antiseptic, antiphlogistic, keratolytic, reducing, exfoliating, destructive and caustic, sclerogenic, and antipruritic. Of these, the only one requiring explanation is the *sclerogenic*, under which are grouped a number of methods such as scarification and photo-therapy, which aim at producing sclerosing processes in the skin.

The second part of the book is devoted to special therapeutics of the different diseases, which are divided not quite logically—but who is logical in classifying disease?—into Congenital Lesions and Tumours, Traumatic Dermatoses, Parasitic and Microbic Dermatoses, Toxic Diseases, Nervous Diseases (this is a commendably small class, though we are not sure that we would not like to see it further curtailed), Diseases of the Scalp, and Diseases of the Nails.

The exigencies of space will not permit us to refer to all these in detail. Most of the directions are full of sound common sense—a term, by the way, which we always use with misgiving, it is so far from *common*—but we must confess our surprise that M. Leredde, who is so pronounced an advocate for the use of X-Rays in many diseases, should make absolutely no mention of them in connection with Mycosis Fungoides, in which their good effects are surely universally admitted, and of which disease he says the only method of treatment which has given any results is the Arsenical. This criticism is only partly answered by the discovery of a small footnote to the effect that Brocq, Dubois Havenith and *divers American authors* (!) have

noted good results from their use. The date on M. Leredde's book is 1904, and if he had followed English literature as carefully as he has French, he would have known that Allan Jamieson and Brooke made this discovery in 1902, and put it on record in that year. The same curious error is noted in connection with Favus, where epilation by forceps is said to be the basis of treatment, though the last sentence states that "*according to Sabouraud*," radio-therapy has the same curative results in Favus as in Ringworm. Freund was, we believe, the first to make public his results in that disease, and it has been in use in Edinburgh, where the opportunities of practising it are unfortunately ample, for at least six years. We have referred to these omissions for the reason that, with the exception of Rodent Ulcer, we believe that there are no diseases in which the X-Rays have been of such signal service.

The book concludes with a most valuable Appendix by Dr Pautrier on the importance of the excipients in dermatologic therapeutics, a matter too commonly ignored, and almost, we would say, of greater importance than the particular antiseptic selected.

The book is a distinct addition to the literature of Dermatology. It will be of special value to those who have to teach Skin Diseases tutorially; all young Dermatologists should read it carefully, and not a few of us who regard ourselves as in the senior ranks would be none the worse of at least skimming its pages.

An Atlas of Dermatology. By MORGAN DOCKRELL, M.A., M.D. London: Longmans, Green & Co. 1905. Price £2, 10s.

THERE have been issued recently several Atlases of Dermatology, most of them produced by some of the more modern processes, for even first-class lithography is not very successful in reproducing the appearances of the diseases of the skin. Of these, one of the best was the Photographic Atlas of Dr G. H. Fox of New York. Dr Fox is a very prince of photographers, and from his unique collection he gave us an Atlas which was of real value to the expert. Then followed the St Louis Atlas of photographs of casts in the Baretta Museum reproduced by the three colour process. For a time this held the field till it was displaced by the English edition of Jacobi's Atlas, issued by Rebman and edited by Dr J. J. Pringle. The casts from which the three colour reproductions in it were taken were mostly the work of Herr Kröner, the artist of Neisser's clinique in Breslau, and we have no hesitation in awarding it the prize as the best

Atlas at present procurable. We only regret that it is not found convenient to let the dermatological world at large into the secret of the production of the originals.

Dockrell's Atlas has, however, one original feature. With the exception of a very brief descriptive text it is entirely the work of Mr Colhoun, so well known some years ago as Dr Unna's laboratory assistant, whom we are proud to claim as of Scottish descent, although he has dropped the QU out of his name. The original feature of the work is the presentation on the same page of a coloured photograph of the disease and a drawing of the microscopic appearances. The latter are excellent, and Mr Colhoun has clearly not lost any of the cunning which we admired and made use of many years ago in Hamburg. The idea, as we say, is excellent; we have nothing but praise for the microscopical drawings, but we cannot conscientiously praise the photographs of the patients. The French and Germans have found out that for the purposes of the three colour process it is necessary to photograph from casts, and if anyone doubts this he has only to compare the best of the plates in this Atlas with the worst in Jacobi's. The flatness of the photograph compares very unfavourably with the life-like appearance of the reproductions from casts, and it is quite clear that until colour photography can be done instantaneously from patients, the cast is the method for getting as near nature as possible. Further, we note with regret that the printing of the plates is a long way behind that of the German and French works. In three colour printing the most absolute accuracy of registering is essential, and in nearly all these plates this accuracy is obviously lacking, with the inevitable result that the prints are not true copies of the coloured photographs which, we are quite sure, knowing Mr Colhoun's work as we do, were excellent. This, however, is not the fault of the author, and can, or at least should be easily remedied. Surely British workmen can do as well as their foreign competitors. We expect to find the Atlas of considerable service in our classes, but those who have only fifty shillings to spend on a Skin Atlas should spend it on Jacobi's.

The Diseases of the Blood. By ALFRED C. COLES, M.D., D.Sc., F.R.S.Edin. Pp. 340. London: J. & A. Churchill. 1905. Price 10s. 6d.

BY a third edition Dr Coles brings his excellent little manual thoroughly up to date. Much useful information has been added, including a somewhat exhaustive treatise on Trypano-

somiasis and a summary of cases of Chloroma. The facts are presented clearly and concisely, and the subject of the parasitic diseases of the blood especially has been treated in a masterly manner. The author has spared no pains in collecting all the essentials from recent literature on his subject, and the work abounds in pertinent quotations and references.

For routine work Dr Coles still uses eosine and hæmatoxylin, a method which does not bring out the neutrophile granules. The eosine and methylene blue method seems to us more useful, and we cannot understand why the author has found so much difficulty in obtaining good results from its use.

Not all will agree with Dr Coles that lymphæmia is so much more rarely met with than spleno-medullary leucocythæmia, and few observers will uphold him when he says that he has never met with true mastzellen cells in the blood in leucocythæmia or in any other condition.

The condition of the blood in general diseases is somewhat shortly dealt with, and no mention is made of the condition of the blood in diseases of the skin.

The whole book is written in an impressive manner and is eminently readable. To the beginner it will form a most useful introduction to the study of hæmatology. The printing and binding are all that could be desired, and the coloured plates are by no means the least attractive features of the work.

Treatise on Bright's Disease and Diabetes, with especial reference to Pathology and Treatment. By JAMES TYSON, M.D. Second edition. Pp. 381. London: Rebman, Ltd. Price 17s. 6d.

THE first edition of this work was published in 1881, and the second edition, which embraces the author's experience of over twenty years, has been for the most part re-written, and sections have been added by Professor George E. De Schweinitz on the ocular manifestations of Bright's disease and diabetes. The book is a good account of the present state of knowledge of nephritis, with fairly full references to the literature of the subject. One of the fullest and most complete chapters is that on the formation and significance of tube casts. One cannot agree with the author's views on the secretion of urine, and no distinction appears to be made between the Diuretic action of digitalis and that of the Xanthin group. One finds no reference to the use of morphia in the treatment of uræmic convulsions and eclampsia, a drug which has given brilliant results in the

hands of some observers; and again, the author ignores the surgical treatment of nephritis, a subject of considerable importance in the present day, especially in America, and on which the author elsewhere has published illustrative cases. Furthermore, in a special manual might we not have found some reference to cryoscopy as a valuable means of estimating renal inadequacy? The clinical account of diabetes is good, but the section on pathology lacks cohesion. The author in his preface admits that the etiology and pathology of diabetes is a difficult subject to treat satisfactorily. A consideration of Pflüge's working hypothesis might have helped him to present the subject in a way which would have conveyed more comprehension to the reader. The sections on the ocular lesions are good. Throughout the illustrations are well done. As a *treatise* the book is disappointing; it does not impress one as comprehensive, or as presenting anything novel.

List of Books Received

From Baillière, Tindall & Cox.

Autobiography of Frederick James Gant. Price 3s 6d.

From William Green & Sons.

The Treatment of Nervous Diseases. By J. J. Graham-Brown. Price 15s.

An Introduction to Physiology. By L. A. Hodgkinson Lack.

From Cassell & Co.

Open-Air Treatment of Pulmonary Tuberculosis. By F. W. Burton-Fanning. Price 5s.

From Rebman & Co., Limited.

Clinical Hematology. By John C. da Costa. Second Edition. Revised. Price 22s. 6d.

The Effects of Tropical Light on White Men. By Major C. E. Woodruff. Price 10s. 6d.

From Scientific Press.

An Elementary Treatise on the Light Treatment for Nurses. By J. H. Sequeira. Price 2s. 6d.

From H. J. Glaisher.

The Intestinal Catarrhs. By Edward Blake. Second Edition. Price 5s.

From J. & A. Churchill.

The Infectivity and Management of Scarlet Fever. By W. T. Gordon Pugh. Price 1s.

Abdominal Pain: its Causes and Clinical Significance. By A Ernest Maylard. Price 7s. 6d.

The Diseases of the Blood. By Alfred C. Coles.

The Book of Prescriptions. By E. W. Lucas. Price 5s.

From J. B. Lippincott & Co.

International Clinics. Vol. iv. 14th Series.

From W. B. Saunders & Co.

A Hand-Book of Surgery. By F. R. Griffith.

A Text-Book of Legal Medicine. By W. Draper. Price 18s.

From J. Wright & Co.

Errors of Refraction and their Treatment. By Charles Blair. Price 2s. 6d.

The Naked Eye Anatomy of the Human Teeth. By Thos. E. Constant. Price 7s. 6d.

Lectures on Diseases of the Stomach and Intestines. By Boardman Reed. Price 21s.

The Medical Annual, 1905. Price 7s. 6d.

Poisonous Plants of all Countries. By A. Bernhard Smith. Price 2s. 6d.

From Longmans, Green & Co.

Recurrent Effusion into the Knee-Joint after Injury. By Sir William Bennett. Price 3s. 6d.

An Atlas of Dermatology. By Morgan Dockrell. Price 50s.

From T. Fisher Unwin.

Studies in General Physiology. By Jacques Loeb. Parts i., ii. Price £1, 11s. 6d.

From G. Steinheil.

Traitement des Ankyloses. Par Alphonse Huguier.

Traitement du Cancer Utérin Inopérable. Par Le Dr J. Récamier. Price 3 francs 50 cents.

Leçons de Clinique Obstétricale. Par Le Dr Queirel. Price 6 francs.

Chirurgie de Système Nerveux. Georges Marion. Price 18 francs.

From H. K. Lewis.

The Sanitary Inspector's Handbook. By Albert Taylor. Price 6s.

Dental Surgery. By A. W. Burrett. Price 3s. 6d.

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NEURALGIA

An Address delivered to the Odonto-Chirurgical Society of Scotland, March 17, 1905

By G. LOVELL GULLAND, M.A., B.Sc., M.D., F.R.C.P.,
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MR PRESIDENT AND GENTLEMEN,—I am greatly honoured by having the opportunity of addressing your learned Society, and must in the first place thank you most cordially for giving me the privilege of being here to-day. It was a matter of some difficulty to me to think of a subject on which I might usefully say a few words, but it seemed to me that there are many cases of facial pain in which there is difficulty in determining whether the pain is due to disease of the teeth or of some other part. These cases are of much interest to the physician, and from what I have seen, the dentist is not always clear as to their origin either, so that it may perhaps be worth while to discuss the conditions, dental and other, which give rise to facial pain, and the points on which diagnosis is to be based in given cases.

Attempts have been made to restrict the term, "trigeminal neuralgia," to the severe spasmodic type with its sudden attacks of agonising pain, which in its worst form is a somewhat rare disease, and even of these cases to include only such as show no alteration in the nerves, and clinically present no apparent structural disease as a cause. But it is very doubtful whether this is wise. Many cases which clinically come under this category are found afterwards to have been caused by structural changes which had escaped notice, and "tic douloureux" is only

the most severe of a long series of pains. It has always seemed to me to be wiser to assume that every case of neuralgia or facial pain has a peripheral cause, if one can only find it. The search is often long and difficult, and sometimes is not rewarded by success, but it ought always to be made. You, gentlemen, are brought in contact with one of the most frequent causes of neuralgia in this wider sense, but I wish to show you that there are many other causes, and to give you an idea of the difficulties to be surmounted in discovering them.

I should like you to-day, then, to allow me to use the term "neuralgia" as meaning pain, not such purely local pain as that caused by an ulcer of the cornea or a gumboil, but pain referred in character, and radiating to a greater or less distance from its source, where that is discoverable, or occurring apart from evident cause in some of the nerves of the head and neck; for I shall, of course, confine myself to that region of the body. It will be necessary also to refer to tenderness as an accompaniment of pain, and especially to the assistance in diagnosis which it gives.

All these pains tend to be more or less spasmodic in character, and to occur in attacks which may be apparently causeless, or may be brought on by heat, cold, or by such acts as sneezing, coughing, chewing, or even by merely touching the skin.

There are a number of general conditions which predispose to neuralgia, but as these are of interest rather to the physician than to yourselves, I shall merely enumerate them, without entering fully into the ways in which they act.

One often hears of nervous heredity as a factor, but I regard it as of small importance; many cases occur in people who are not neurotic or of neurotic heredity at all.

Then come infective diseases, of which probably the most important is influenza. The neuralgia following this is usually supra-orbital, less frequently infra-orbital, and I think is very often due to changes either in the frontal sinus, or in the maxillary antrum. After an epidemic of influenza such as there has been recently, one has abundant opportunities of studying this form. Next come typhoid and small-pox, and in other countries, malaria, which has a special fondness for the supra-orbital division. Of the chronic infective diseases, syphilis, from its tendency to cause periostitis, is by far the

most important, while rheumatism is probably also effective because of the tendency to fibrous tissue formation.

Of other poisons, lead, mercury, alcohol, and tobacco are occasional causes; and of metabolic poisons, those of diabetes and gout are important. In some cases these probably cause a neuritis, rather than an actual neuralgia.

Atmospheric cold, especially damp cold acting for a long time, is a very important cause; as is also alternate exposure to cold and heat. Digestive disturbances, especially chronic constipation, anæmic states, such as chlorosis, disturbances of the female genital organs, mental distress, and, in fact, any condition of run-down-ness, may assist in causation, and last, but by no means least, the degenerative changes in the arteries which occur in old age. It is a common experience that neuralgias occurring in the latter half of life are more severe and more obstinate than in earlier years.

But if the predisposing causes are numerous, the exciting causes in the nerve itself, or in the periphery, are not less varied. It will be most intelligible if I take these up from the centre outwards. We know little or nothing of pathological conditions affecting the trunk of the nerve before it reaches the Gasserian ganglion, but the ganglion itself has been often found to be profoundly altered in cases where it has been extirpated for neuralgia. The alterations usually found have been degeneration of the ganglion cells, overgrowth of fibrous tissue, and sometimes degeneration of the nerve-fibres passing into or out of the ganglion.

It is perhaps open to question whether all these changes are primary, or whether they may not sometimes be due to the resections of nerves which in almost every case had preceded by some time the operation on the ganglion itself. In a case of intense supra-orbital neuralgia, accompanied by herpes, which I examined post-mortem some months after the onset of the condition, I found marked sclerotic processes in the part of the ganglion associated with the first division. These were probably the result of some acute hæmorrhagic or inflammatory change which had occurred and caused the onset of the neuralgia, and their presence had sufficed to keep it up.

There are many intracranial changes which may irritate

the ganglion or the three nerves which arise from it—tumours, such as exostoses, aneurism of the internal carotid or its branches, changes in the dura mater—it should not be forgotten that each of the three divisions sends a recurrent branch to the dura—and so on. Perhaps the most striking case which has ever been published in this connection is one of Krause's. The patient suffered for fifteen years from the most excruciating neuralgia, at first in the third division, but later in all three. No peripheral cause could be found, and there was absolutely nothing to point to intracranial tumour or other change. At the end of the fifteen years the ganglion was removed, with immediate relief as a result, but the patient died a month later of what was supposed to be some cerebral condition secondary to the operation. It was found post-mortem that the condition had been due to a tumour of the arachnoid of very slow growth, a cholesteatoma, which had affected the whole of the base of the brain and to some extent invaded it. All the nerves arising from the base of the brain were surrounded by it and compressed to a certain extent, but none of them were destroyed. The slowness of the growth explained the absence of other symptoms.

The nerves themselves after they leave the ganglion, are peculiar in this respect that they all lie in bony canals. This is, of course, more marked in the case of the second and third divisions than of the first. In the case of the two lower divisions the canals vary a good deal in actual diameter, but the nerves fill up almost the entire canal, leaving room only for the artery and vein which accompany them, and for a little fibrous tissue. It is therefore obvious that comparatively slight changes in the bone around or in the canal itself will at once affect the nerve. Dana found that many of the severe cases, in the second and third divisions especially, which occur in the second half of life, were due to an obliterative endarteritis of the nutrient arteries of the nerves, which naturally rendered the nerves anæmic in the first place, and probably contributed to the increased growth of fibrous tissue which other observers have described in the nerves, usually in the neighbourhood of the artery. Actual inflammation of the nerves, or neuritis, may be caused by some of the constitutional conditions I have already mentioned, but this gives rise as a rule to a set of

symptoms rather different from those of a true neuralgia—constant pain, tenderness along the whole course of the nerve, and later paralytic or trophic phenomena. Neuritis is also a more acute condition as a rule than neuralgia.

At the points where the nerves make their exit from these bony canals they are specially liable again to injury or to irritation from periosteal or other change, and these points, and the points where the nerves pierce fasciæ to become superficial, are the "tender points" of Valleix, on which, at one time, great stress was laid, as this presence of tenderness was supposed to differentiate "true" neuralgia from other pain. These tender points are often present, but by no means invariably. I have seen some "true" neuralgias in which the corresponding tender points did not react at all. Still they are usually to be found, and often the patient knows of their existence by painful experience, as it has been discovered that a touch on the skin, or lifting the hair overlying them, will bring on an attack. On the other hand, firm pressure over them often relieves the pain; most of us have seen neuralgics in an attack pressing a given spot with hand or handkerchief. I need not detail the exact positions of these points in the different neuralgias, for they correspond very closely, if not absolutely, to the maximal points of Head's tender areas, to which I shall refer when speaking of the teeth.

And now we may pass to the actual peripheral distribution of the nerves, and it will serve no purpose to group these by the divisions of the trigeminus or other nerves which supply them, for it has been shown of late that the branches of the different divisions overlap one another, and are themselves overlapped by the branches of other nerves to a considerable extent. Of course tumours, scars, foreign bodies may at any point give rise to neuralgia by irritating terminal branches. Krause relates a remarkable case where a neuralgia, supposed to be causeless, was found to be due to a carcinoma of the pharynx which had spread to the spheno-palatine foramen, and pressed on the nerve there.

Of the organs in the face, the eye is of great importance in causing pain. In inflammation or ulceration of the cornea and conjunctiva, which are really parts of the skin surface, referred pain does not occur. But any part of the eye deeper than the

cornea may give rise to referred pain, as well as local pain, and sometimes only to the former. Probably the most frequent cause of this is hypermetropia, which usually gives rise to rather a dull pain, though sometimes it is acute enough. The combination with astigmatism greatly increases the liability to pain. Here the pain is referred to the centre of the eyebrow, and is due to overstrain of the ciliary muscle in the effort at accommodation. It comes on in the morning, is increased by fine work of any kind, and, like every other pain, is apt to be much worse if the patient is in poor health. I know one hypermetropic lady, indeed, who is quite free from pain as a rule, but in whom it occurs with great severity whenever she is out of health.

A point of interest in diagnosis is that this hypermetropic pain disappears if atropine is used to such an extent as to paralyse accommodation. Most of the other ocular conditions which give rise to severe referred pain cause local pain as well, and produce sufficiently definite symptoms to attract attention to the source of the mischief. Many of them are associated with referred pain and tenderness. This is perhaps most marked in the case of acute glaucoma, where the teeth of the upper jaw sometimes, and even of the lower jaw, become tender to tapping, as if there were periodontitis present. Head points out that in eye lesions the more anterior the lesion in the eye, the more apt are the frontal areas of the skin to be tender, while if the posterior parts are affected the tenderness tends to spread back to the vertex.

Affections of the nose itself are seldom painful; polypi are supposed sometimes to give rise to neuralgia, but my experience is that they seldom do so. Most patients with nasal polypi have no pain at all, and are frequently quite unaware that there is anything wrong with their noses. Where neuralgia with nasal polypi does occur, it is probably due as a rule to associated affections of the sinuses. These latter are fertile sources of neuralgia, however, as the result of inflammatory swelling of the sinuses or of new growths arising in them, or in cases where there is a certain amount of catarrh in the sinus, from swelling of the nasal mucous membrane and retention of secretion in the sinuses. In medical practice it is the frontal sinus which is most frequently affected, though

I doubt not that in your branch of the profession you see more affections of the maxillary antrum.

During an epidemic of influenza this frontal neuralgia is very frequent in its slighter degrees, but within the last three months I have seen four cases in which the pain was so severe and constant as to give rise to the suspicion of meningitis, and I have seen several others where it was extremely severe, but not constant. One of the best marked of these cases I may relate. The patient had had a fairly severe influenza with a good deal of nasal catarrh, but had recovered to a certain extent and was going out again. Suddenly one forenoon he was seized with the most intense pain on the left side of the forehead, with lachrymation, conjunctival injection, and profuse discharge from the left nostril. There was marked tenderness over the supra-orbital notch, and over the whole of Head's fronto-nasal area, and the pain radiated also to the front teeth on that side. This lasted for two hours or so and then passed off. On the two following days the experience was repeated, but on the right side. During the intervals both pain and tenderness were entirely absent. I have seen numerous similar cases at various times, and while their explanation after influenza is simple enough, cases crop up occasionally in which there has been no pre-existing acute condition and which, unless one is on the outlook, one is apt to regard as pure neuralgias, because these cases, like the acute ones, often show a marked periodicity or intermittence. Frontal sinus pain seems to have a special tendency to occur in the forenoon. The same thing occurs sometimes with the maxillary antrum, though less frequently, and there, as the pain radiates much more to the teeth than in the frontal sinus, may give rise to errors in diagnosis.

This difficulty in diagnosis is specially prominent in the case of the ear. Most conditions of the outer ear give rise to local pain only, though exostoses are cited as sometimes causing true neuralgia, but with painful affections of the drum and inner ear there is almost always referred pain as well, which is felt in the vertex sometimes, and almost always along the lower jaw; whilst on the other hand, affections of the first and second lower molars are associated with pain in the ear. You must all have met with cases of this sort, but the difficulty

was well illustrated in a case I met with recently. The second lower molar had been decayed and gave rise to pain, and particularly to pain in the ear. We are all of us inclined to look for the causes of pain anywhere but in our teeth, and the patient treated his earache by putting pledgets of cotton-wool soaked in laudanum into his ear. At last, however, he went to a dentist, who extracted his tooth—with some difficulty, I believe. In spite of this the pain did not disappear, but it became much more spasmodic in character. When I saw him I examined his ear, of course, and found a pledget of cotton wool forgotten, and tightly jammed against the drum, which was a good deal reddened. The removal of this took away his neuralgia.

The structures within the mouth other than the teeth which are likely to give rise to pain are principally the tongue and the tonsil. Diseases of the tongue which cause pain, however, are usually sufficiently obvious to attract attention at once. It is of interest to note that the pain is referred to different areas according to the part of the tongue affected: the tip refers to the mental area on the chin, the sides to the hyoid area, and the back to the superior laryngeal. Disease of the tonsil is also usually obvious: pain is referred to the hyoid area, and in malignant disease of the tonsil the external auditory meatus may be very tender.

Few affections of the larynx cause referred pain or tenderness, and when they do it is only to the skin immediately overlying them in the superior and inferior laryngeal areas. Destructive tubercular ulcerations are the only lesions that do this at all frequently.

In talking about pain which arises from the teeth, I am, of course, on ground where my audience knows more about the matter than I do, but I trust I shall be corrected if I state the sequence of events inaccurately. When caries first starts in a tooth, so long as the dentine alone is affected, the pain remains local, provided that the pulp cavity is not exposed. Local stimulation of the tooth, as, for instance, by heat and cold, causes local pain only. There is no neuralgia and no tenderness; but as soon as the pulp cavity is exposed, the pain alters in character. It starts in the tooth, darts into the face, forehead, neck, ear, or to other teeth, as the case may

be, and if during this neuralgic stage the skin be examined, one or more areas of tenderness will be found.

Head has gone into this subject with great minuteness, and while I feel that I may be recapitulating what is already known to you, I cannot refrain from giving his results in some detail, for I know that they have remained unnoticed by many of my own profession, and they may possibly be new to some of you. It is impossible for anyone talking of neuralgia to avoid borrowing largely from his classical paper (*Brain*, 1894).

His method of examining the skin for tender areas was to use a round-headed pin with light pressure for the upper part of the cheek and forehead, and to pinch the skin gently over the lower part of the cheek and the lower jaw, lest confusion might be caused by pressure on underlying tender structures. The tenderness which he found is not developed until the neuralgia has lasted several hours, and it usually passes away within twenty-four hours after the cause of offence has been removed. If the pain has ceased when the patient is seen, the tenderness may possibly have passed away, but the history may be useful in diagnosis, as pain and tenderness are always referred to the maximum point of the affected area, and thus the affected tooth can be arrived at. For example, earache is associated with the hyoid area and with disease in the second lower bicuspid and the first and second lower molars. In all the varied changes which may go on in the pulp cavity in the later stages of slow death of the tooth, and which I need not describe to this Society, the tenderness of the skin in the definite areas will persist as long as there is any living pulp or nerve in the roots left.

When both pulp and nerve are dead the tooth may still cause pain from periodontitis, but this in the vast majority of instances is a local pain. There may be some darting pain, probably due to pressure from the swollen parts on the nerve trunks near, but no more, and the darting occurs only on actual irritation of the tooth and not spontaneously.

It is thus possible to tell whether pain following the filling of a tooth is due to further destruction in the nerve from imperfect cleansing of the cavities or to periodontitis. In the former case pain may be present in the associated area of

reference; in the latter the pain and tenderness will be local and not referred.

I have compounded Head's diagrams of the areas of referred pain and tenderness which have to do with the teeth, with his

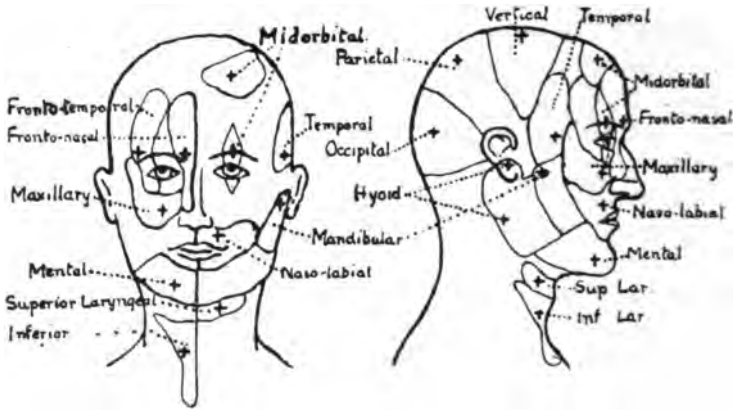

diagram of the maximum points, and would ask you to notice how closely the maximum points correspond with the tender points of Valleix, which have to do with so-called pure neuralgias, and I have attached also a table of the relations

Teeth Affected.	Area.	Organs Affected.
Upper Jaw—		
Incisors	Fronto-nasal	Upper part of nose, frontal sinus, anterior part of eye.
Canine and 1st bicuspid	Naso-labial	Lower part of nose, posterior nares.
2nd bicuspid	Temporal or maxillary	Iris, deeper part of eye (temporal).
1st molar	Maxillary	
2nd and 3rd molars	Mandibular	
Lower Jaw—		
Incisors, canine 1st bicuspid	Mental	Tip of tongue.
2nd bicuspid	Mental or hyoid	
1st and 2nd molars	Hyoid (pain in ear)	Membrana tympani, middle ear, side of tongue, tonsil.
3rd molar	Superior laryngeal (hyoid sometimes)	Back of tongue, destructive lesions of larynx.

between individual teeth and special areas along with the other organs in the region under discussion which refer into these areas. This should enable one in given cases where pain and tenderness are present to get a hint of the principal source of it. It must not be forgotten, however, that some visceral conditions, such as disease of the heart, lungs, stomach, etc., may cause pain and tenderness in some of the head areas. But these are always the upper ones, and are always associated with areas of pain and tenderness on the body, and of course with other symptoms of disease, so that no great amount of error is likely to arise from that fact.

One of the most interesting points in regard to neuralgia starting from the teeth or elsewhere is the way in which the pain spreads from one area to another. In some people one would find the diseased tooth give rise to pain in only one area; for example, disease of the second lower molar may affect only the hyoid area. In others the reference is much more wide. The same tooth will cause, perhaps with particular frequency, pain in the occipital region, and Head reports a very interesting case where the reference was much wider.

The patient was a girl with disease of the second lower left molar, which caused neuralgia in the face with pain in the left ear. Then all the teeth in the left half of the lower jaw up to the canine ached; later the whole of the left side of the face, neck, and part of the left arm. The whole passed off in four days after the removal of the second lower molar. This girl also had phthisis, and that is one of the conditions in which pain and tenderness are specially apt to spread, owing to the deficient resistance within the nervous system produced by the phthisical cachexia. But of course phthisis is not the only condition which will cause such a spread. Almost any cachectic condition, especially if associated with anæmia, or with rise of temperature, will tend to have this effect.

It is curious to find that neuralgias, even when definitely caused by teeth, are not always found in the same branch of the fifth nerve.

Gowers reports a case of neuralgia of the second division from a tooth in the lower jaw, which passed off when the tooth was removed; and Von Leube saw another case where

a tooth in the lower jaw gave rise to a supra-orbital neuralgia.

It must be a common experience to you all that in neuralgias both healthy and decayed teeth have often been pulled out without having any effect upon the pain. Indeed, in some rare cases the extraction of carious teeth has increased the pain greatly and permanently, and in still others the removal of teeth has set up a neuralgia which did not previously exist. Probably this has been due either to the formation of cicatrices or else to simple irritation of nerves in predisposed people; but most troublesome of all, perhaps, are the neuralgias which start with pain in the jaw in people whose teeth have long since disappeared.

These cases seem to be due to sclerotic processes in the jaw which lead to the formation of fresh bone and pressure on nerves. Possibly the condition is analogous to the formation of pulp stones or a new formation of dentine, which are, I believe, a fairly frequent cause of neuralgia in apparently healthy teeth.

Throughout this paper I have endeavoured to lay stress upon the necessity of a minute examination and upon the desirability of making a diagnosis where possible, so that I need not now recapitulate much that I have said on this point, but some points will often call for consideration.

The first is the relation of hysteria to neuralgic pains. Neuralgia may, of course, occur in a hysteric, but there are many pseudo-neuralgias where the pain is psychical only, or produced by the very slightest irritation. It is, of course, apt to be influenced especially by psychical conditions, and particularly by self-observation. When these neuralgias affect the body they are apt to affect, not particular nerves, but segments of one side, and the same is to a certain extent the case when they occur in the face and head. The painful points are often not present, and the pain is felt over ill-defined regions.

In very old-standing cases of neuralgia, where the pain is markedly spasmodic and spreads very widely and quickly, it is sometimes of considerable importance to find which is the primarily affected area. The history of the case will help here, and another aid is the hypodermic injection of morphine. This does not prevent the attacks, but in all but the most

severe cases prevents radiation, and confines the pain to the primary area. This, of course, enables search to be made for a peripheral cause; or, if that is not forthcoming, indicates the region where treatment is most likely to be useful. It is often extremely difficult to say whether the cause of a neuralgia is central or peripheral. If a peripheral cause can be found, one is, of course, always justified in removing it as far as possible; but in long-standing cases this is not always successful in removing pain, because a nerve change, once initiated and allowed to become chronic, is apt to pass up to the centre.

The more twigs of a branch affected, apart from radiation, the more likely is the cause to be central, and, therefore, if all three branches of the fifth nerve are affected in any case, a central cause is always very probable, again apart from radiation. But when only one or two twigs are affected, the converse does not hold, for a central cause may not, and does not always affect all parts of the nerve equally; and drawing conclusions from the co-existence of symptoms of cerebral disease—though frequently useful—is not always so, for, of course, cerebral disease may co-exist with an entirely independent neuralgia.

But these considerations come into play in a comparatively small number of cases; and in most neuralgias, peripheral causes can either be found, or, with some approach to reasonableness, be surmised.

I do not propose here to enter at all into the question of treatment of these conditions, that would lead us too far. But I should like to narrate briefly two cases; the one to show how far afield a cause for neuralgia has sometimes to be sought, the other to illustrate the effect of somewhat unusual treatment. The first patient was a lady with a severe infra-orbital neuralgia, for which no cause had been found. The circumstances of the case seemed to make syphilis most unlikely, but a chance remark about some skin affection made me examine her legs. These were adorned with scars which were quite typical, and treatment appropriate to the general condition relieved the neuralgia.

The second case was that of an elderly lady, whose life had for some years been a burden to her by reason of a very severe infra-orbital neuralgia, with a tender point between the ala of the nose and the angle of the mouth. She could not wash, eat

or drink without intense pain; every possible peripheral cause had been excluded, and every possible remedy, short of operation, had been tried in turn, and in vain. We were considering operation, when she went to the country for a few days, and, while driving, was the victim of a bad carriage accident. Her face, and especially her nose and upper lip, were badly bruised; and she had no return of the neuralgia for years afterwards, and then only in a mild form. I do not wish you to infer that the proper treatment of causeless neuralgia is to beat the patient's face with a club, but the case is a suggestive one.

In concluding, I am fain to confess that I have treated all too inadequately a very wide subject. I trust you will bear with the imperfections of my remarks, and I shall be satisfied if I have brought before any of you facts or points of view which are new to you.

CLIMACTERIC HÆMORRHAGE DUE TO SCLEROSIS OF THE UTERINE VESSELS[1]

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UTERINE hæmorrhage in patients at or near the menopause is a subject calling for careful consideration. It is often the sign of malignant disease, and too much importance cannot be attached to this fact, because the only hope for treating such cases successfully lies in early operation, operation done at a time when bleeding is the only symptom. Once pain and fœtid discharge are present the chance of a successful operation has been lost. This fact cannot be too strongly impressed on the lay mind, so as to lead patients suffering from too free or irregular bleeding to seek advice early. Fortunately it is only in a certain proportion of these cases that cancer will be found, and the cause of hæmorrhage in others is hard to explain. I am not referring to cases associated with abortion, but to those in which this cause can be excluded.

The case which I now record throws light on a cause of profuse bleeding which has not received sufficient attention. The clinical facts are as follows.

[1] Read before the Edinburgh Obstetrical Society.

Mrs M., aged 46, xi-para, has been a very healthy woman all her life till within four and a half months of admission to hospital. There is no history of Bright's disease, rheumatism, gout or syphilis in herself, or in other members of her family. She is not an abstainer, but has never taken alcohol regularly or in excess.

She has had nine full-time children and two miscarriages—one at six weeks, and one at three months. These miscarriages occurred after the birth of the fourth or fifth child, and her first labour occurred when she was 19, and the last when she was 43.

Before her first child was born, her menstrual periods lasted for from two to three days, and subsequently for from four to five days, the amount never being profuse. During the past year they have been more prolonged, often lasting for a week, and the amount lost, especially on the first two days, has been excessive. There were never any clots in the discharge. The periods always recurred regularly, every twenty-eight days, till nineteen weeks before admission to hospital, when a severe hæmorrhage began on the day of her expected period, which, instead of ceasing at the end of the week, continued for sixteen weeks. During this time there was hæmorrhage every day, but it varied in quantity at different times ; some days there would be a mere show, on others severe flooding which confined her to bed, and left her weak and shaky for days afterwards. She allowed this to go on for twelve weeks without consulting her medical adviser. His first prescription had no effect, but later on he gave her medicine which apparently stopped the hæmorrhage for the three weeks previous to her admission to hospital.

On admission, patient was found to be markedly anæmic and cachectic, her appearance suggesting malignant disease. Though fairly well nourished, she was weak and unable for exertion owing to the state of the circulation. Pulse, small and feeble, varied from 84 to 90, and there was a systolic murmur over the mitral and pulmonary areas. It was ascertained subsequently that there was no thickening perceptible in the wall of the radial artery, that the temporal arteries were not thickened or tortuous, and that there was no enlargement either of the left or right side of the heart. Examination of the pelvic organs showed the os uteri to be directed downwards

and backwards, and patulous, admitting the tip of the finger easily. The cervix, while enlarged, showed no signs of malignant disease; the body of the uterus was enlarged, irregular in shape, and about four inches in vertical measurement. It was of firm consistence, anteflexed, and freely movable. The examining finger was stained with blood. As the patient was not in a fit state to stand a preliminary curetting, it was decided to perform hysterectomy as soon as she was able for it. The operation was done a week after admission. Owing to the size of the uterus, the abdominal route was chosen. By the advice of Professor Simpson, who kindly assisted me at the operation, pan-hysterectomy was done. Owing to enlargement of the uterus, as well as the previous history of the case, we expected to find a malignant condition of the body of the uterus, so the cervix also was removed. The patient stood the operation well, but convalescence was delayed by an attack of phlebitis in the left leg, which showed itself on the twelfth day. On the fifth day, and subsequently, there was a slight rise in temperature, occasionally touching 100°; on the twelfth day it rose to 101.5°, on the thirteenth to 102°. It was at first thought that this might be due to a suppurating stitch-hole in the abdominal incision. But on the twelfth day pain and swelling developed in the left leg, due to phlebitis. This retarded her convalescence, and it was four weeks before she was able to get up. She went home seven weeks after the operation, feeling well.

For the following description of the parts removed I am indebted to Dr B. P. Watson, who has examined them for me in the Laboratory of the Royal College of Physicians.

The specimen consists of uterus and cervix, together with the appendages on both sides. Externally the uterus looks healthy, except that it is enlarged, measuring 9.5 cm. in length and 6 cm. in breadth at the insertion of the Fallopian tubes. The right ovary is enlarged to the size of a pigeon's egg by a cystic degeneration; on section two blood-cysts are found, one large and the other small, and both containing fluid blood. There is very little ovarian substance left. The left ovary is small and sclerosed, and shows on section one or two bright yellow spots about the size of a pin's head. Both tubes look healthy, except that they are studded here and there with

sub-peritoneal cysts. In each broad ligament below the tube is a plexus of wide vessels with markedly thickened walls which anastomose freely with each other. One of these flattened out vessels measures .5 cm. in diameter. They stand out distinctly from the parovarium, which is rather small ; on the left side is a large hydatid of Morgagni.

On laying open the uterus the walls are seen to be thick and hard, measuring 2.5 cm. in thickness in the middle of the body ; from the cut surface the vessels stand out prominently, and have apparently thickened walls. They are most marked in the outer third of the wall. The mucosa is smooth and healthy looking, but paler than normal. There is a small blood-clot at each tube corner, but otherwise the cavity is empty. The cervix is quite healthy.

Microscopic Examination.

Section from middle of uterine body.

Mucous Membrane.—This measures 1 mm. in thickness on an average, but at one or two places it dips down rather more deeply into the muscular wall. The lining epithelium is in most places intact, consisting of the usual single layer of columnar cells. The absence of these cells at certain places is probably due to faults in the preparation of the specimen. The uterine glands are normal in appearance ; there is no tendency to proliferation of the epithelium lining them, and no increase in their number. At one or two places they dip rather deeply into the muscular wall, but not more so than is normally seen, and in none of these areas is there any epithelial proliferation. The interglandular tissue shows a very marked infiltration with small round cells. Towards the free surface the tissue is loose and open, and at one point is infiltrated with red blood corpuscles ; this area is small in extent and the amount of blood effusion is trifling. In the deeper parts of the mucosa, and especially near the muscular wall, the tissue becomes denser and more fibrous, and at places shows a tendency to a whorled arrangement, this being more marked round the glands and blood-vessels.

The vessels of the mucosa show very striking changes. Looking at a section under a low power one is at once struck

with the large number of vessels in the field, and the ease with which, owing to the thickness of their walls, they can be seen. This is very well brought out in Fig. 1. The walls of the capillaries, instead of consisting practically of a layer of endothelium, are thickened by a deposition round this layer of concentric lamellæ of fibrous tissue with well stained nuclei (Fig. 1). In some of the vessels the thickening is of a hyaline character, the wall taking on a uniform stain with eosine, with nuclei very far apart. Fig. 2 shows this very well. This vessel is situated in a piece of mucosa lying deeply in the muscular wall. When seen in longitudinal section the vessels are tortuous, and this may account to some extent for the apparent increase in their number in transverse section. Some of these thickened vessels can be seen running up to the free surface of the mucosa. While the vast majority of the capillaries of the mucosa show these obvious signs of disease, there are others which are apparently healthy with extremely thin walls, and a lining of a single layer of endothelium. It is noteworthy that the lumina of these vessels are larger in many cases than those of the diseased ones.

Muscular Coat.—There is no obvious change in the muscle fibres, but a slight excess of fibrous tissue. At a point about the middle of the wall is a small area infiltrated with leucocytes. The vessels are increased in number and the artery walls very considerably thickened. This thickening is in most cases due to an increase in the middle coat, and to a less extent in the outer (Fig. 3). In some the inner coat is also irregularly thickened, distorting and contracting the lumen (Fig. 4). In some of the smaller arteries there is a hyaline degeneration. These changes are most marked in the inner and middle thirds of the wall. In the cervix the vessels are increased in number, but there is no special thickening of the walls. The glands here are healthy.

Uterine Artery.—A section of this vessel, as it enters the wall of the uterus, shows very little change from normal, the only noticeable feature being the way in which the internal elastic lamina seems to be broken up into a large number of strands. There is no thickening of the intima or of the tunica media.

The vessels in the broad ligament have thick walls. At a

FIG. 1.—Mucous membrane from middle of uterine body, showing the small celled infiltration, the normal appearance of the glands, and the increase in number and marked thickening of the walls of the capillaries (×250).

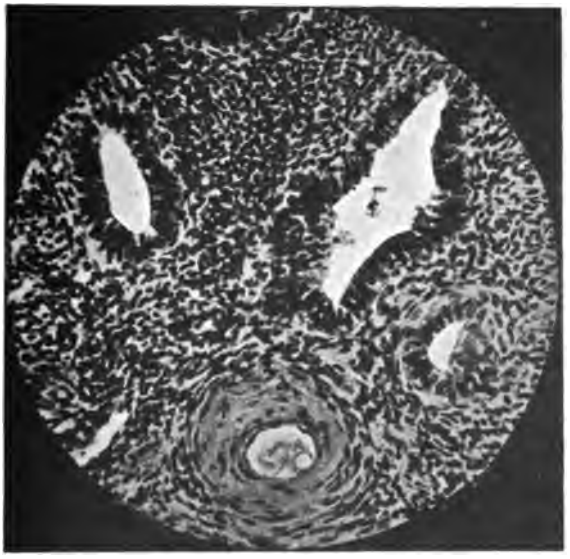

FIG. 2.—Another area of the mucous membrane showing the very marked thickening of one of the capillaries. Note the concentric arrangement of the fibres (×250).

PLATE X.—TO ILLUSTRATE DR BARBOUR'S PAPER.

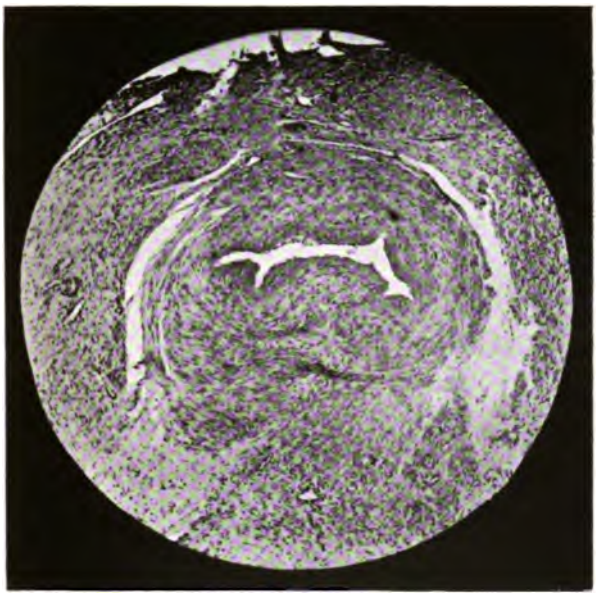

FIG. 3.—Vessel in the middle third of the muscular wall showing thickening of the media, and to a less extent of the adventitia (× 50).

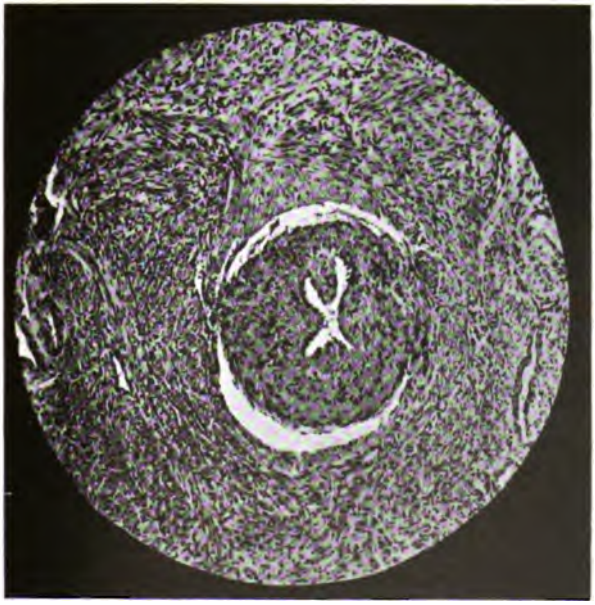

FIG. 4.—Vessel in the middle third of the muscular wall showing thickening of media and irregular thickening of the intima (× 50).

PLATE XI.—TO ILLUSTRATE DR BARBOUR'S PAPER.

single point in one of them there is commencing calcareous degeneration of the intima. This is the only area of calcification in any of the vessels. The middle coat is very thick, and makes up the greater part of the wall.

The first case I can find in the literature resembling this one is recorded by Pichevin and Petit (1). The patient, aged 41, had an attack of typhoid fever eleven years previously, followed by menorrhagia; after which came a normal confinement followed by regular menstruation. Two years later she had another child, with hæmorrhage during the early months of pregnancy, and subsequently a tendency to menorrhagia. After a loss of blood lasting six months she was treated by curetting, which was followed by regular menstruation for a year. The hæmorrhage then returned to such an extent that hysterectomy was performed, the diagnosis being uterine fibroid. The uterus when removed showed an increase in its walls to three times the normal thickness, but no evidence of fibroid or malignant disease. The mucosa was healthy, but the blood-vessels of the muscular wall, especially its middle section, were increased in number and thickness through abnormal development of the perivascular connective tissue. Patches of embryonic connective tissue were also noted in the walls, with dilatation of lymphatics.

Two years later Reinecke (2) reported four cases of hysterectomy for hæmorrhage in patients aged 40, 43, and 45. Microscopic examination showed in all cases a uterine mucosa with normal glands, but infiltration of small cells in the interglandular tissue; and in two cases the capillaries and small arteries thickened—in one case all the three coats, in the other the tunica media and to a smaller extent the adventitia. In the other two cases the vessels of the muscular wall alone showed a remarkable thickening of the tunica media, and to a lesser extent of the adventitia, the intima remaining unchanged. The changes in the vessels he compares to that described by Saville (3) in the coronary arteries of the heart. It is an arteriosclerosis, and related to the age of the patient. No other cause, such as alcohol or syphilis, could be traced, and there was no affection of the arteries elsewhere. The connective tissue changes he regards as secondary, the muscular tissue of the

uterus being replaced in parts by connective tissue as the result of the circulatory changes.

Writing in the *British Medical Journal* for 1899, Bland Sutton (4) says :—

"Amongst these conditions there is one to which sufficient attention has not been given; its leading features are these: the subjects are usually mothers between 35 and 45 years, complaining of menorrhagia, which in some cases lasts from 14 to 18 days, and at times is so profuse as nearly to bleed them to death. When the uterine canal is dilated artificially the cervix tears rather than stretches, and the endometrium is quite smooth, but the walls of the uterus are hard and resisting, and the curette makes a harsh grating sound in passing over it.

"Curetting arrests the bleeding for a few months. In the first case of this kind which seriously attracted my attention, the patient had been curetted by obstetric physicians seven times. After very careful consideration, I proposed removal of the uterus; but at a consultation with very competent advisers, complete oophorectomy was recommended and carried out. The menorrhagia continued unabated, and two years later it became absolutely necessary to perform vaginal hysterectomy. Convalescence was slow, but in the end a complete return to permanent good health and vigour was the consequence. Two other examples have come under my care in which long-continued drug-treatment, varied with annual and bi-annual curettings, had failed in the hands of physicians; in each I removed the uterus by the vaginal route with success and permanent good consequences.

"In these three cases the uterus was larger than normal, with thick, tough walls; on section the arteries stand out prominently exposing their thickened coats; microscopically it is seen that the muscle tissue is replaced by an abnormal growth of fibrous tissue. Judging from the history of these cases, I take the view that these fibrotic changes are secondary to infective chronic metritis, and are analogous to that curious fibroid change (syphilitic) which occurs in the muscle tissue of the heart, and which entails consequences so serious as sudden death."

Pozzi (5) has described two cases, both of the patients

younger than those already mentioned. His first was 34, a v-para, two children being dead-born, and one an abortion. Nine months before operation she began to have considerable loss, the discharge occurring twice a month. Four months before she had had abdominal pain in the left iliac fossa, which was worse before the discharge. From the uterine enlargement, it was supposed to be a small fibroid, and hysterectomy was performed. A plate is given, showing the vessels under a low (100 diameters) and high power (250 and 500 diameters). There is an increase of the elastic fibre, which is seen gradually to replace the muscular coat; sometimes there is an elastic thickening only on one side, or it forms a more or less complete ring, replacing in whole or in part the muscular wall. It also extends into the connective tissue around the vessels and breaks up the muscular bundle. The process which is most marked in the larger arteries and veins affects also the small capillaries and the lymphatics. The mucosa shows only dilatation of some of the glands; the lymphatics are dilated at the junction of the mucosa and muscular wall.

The second patient was also a v-para, aged 30, the last child being born two and a half years previously. Since then she had had abdominal pain, and for the last eighteen months menstruation had lasted eight to ten days. She was curetted without benefit, and hysterectomy was performed. The uterus was increased to twice its size, and on section had a cribriform appearance. The walls were extremely vascular, the arteries standing out in a ring of connective tissue, which separated them from the muscular tissue around. The mucosa is thickened and composed of an embryonic tissue, the cylindrical epithelium has completely disappeared, the uterine glands are moderately dilated, and preserve their epithelium. The arteries show partial loss of the endothelium, the sub-endothelial tissue is replaced by elastic fibres, the muscular coat is invaded by elastic tissue, which in part replaces it entirely. The adventitia is greatly hypertrophied, and extends outwards in islands. The veins show similar lesions, only containing less muscular fibre; the elastic elements have found less obstacle, and show a remarkable development, which keeps the veins gaping. The lymphatics show an increased formation of elastic tissue round

them. The connective tissue is increased through the whole substance of the uterus.

One more case has been recorded by Simmonds (6) of hysterectomy, in a woman of 54 years of age, performed for continuous hæmorrhage, which had resisted other treatment, and where the only pathological change found was marked sclerosis of the uterine artery. Perhaps we should also include a case reported by Morisani (7), where he had to extirpate the uterus on account of hæmorrhage in a patient with a history of syphilis. The microscopic examination showed, in addition to numerous extravasations, a proliferation of the connective tissue, and advanced degeneration of the blood-vessels, which he describes as angio-sclerosis, and regards as a manifestation of old-standing syphilis.

These cases, which are all that I have been able to gather from the literature, have this in common, that the walls of the vessels are thickened, but in different ways. In Reinecke's cases there was hypertrophy, both of the muscular tissue and fibrous tissue; in Bland Sutton's, Pichevin's, and my own, there was increase of fibrous tissue, while Pozzi describes an increase of elastic tissue. How this thickening is brought about is not plain. Bland Sutton attributes it to an infective chronic metritis. The fact that in some cases the uterine vessels are alone affected suggests that it is a process stretching upwards from the uterus. And in a case of sclerosis, limited to these vessels, in a patient suffering from tuberculous peritonitis, Müllerheim (8) asks whether there may not be an etiological connection between the two. In this case the ovarian and uterine arteries were calcified throughout this whole extent, while the vessels in other parts of the body showed no change.

On the other hand, were it due to this cause, we would expect to find it more frequently, and there would be no reason for its occurring in advanced life. There is a great divergence of opinion among pathologists as to the etiology of sclerosis and even as to its nature, and we must leave them to settle this point. The age of the patient shows that senile changes are a more important factor than infection.

It is important to note that in none of the patients was the menopause established. Arterio-sclerosis after the menopause has been frequently described, but never as accompanied by

serious hæmorrhage. One of the most frequent conditions found post-mortem in the uterus of elderly women is hæmorrhages into the endometrium and muscular wall, with sclerosis of the uterine artery. The condition is thus described by Klob (9).

"Hæmorrhage into the tissue of the uterus develops principally in old women, and has been named apoplexia uter by Cruveilhier. In this condition the whole uterus is in a state of senile atrophy, becomes flaccid, friable, and the rigid arteries project like whitish stumps which have not retracted from the surface of the cut sections. The mucous membrane of the posterior wall especially (and sometimes exclusively), and the tissue of the uterus underneath, though never to any considerable depth, appears to some extent, and occasionally wholly, reddish-black, brittle, easily torn, changed into a uniform mass resembling clotted blood. Cruveilhier differentiates according to the thickness of the affected layers, three kinds or degrees of the affection, and states that, if the hæmorrhage extends beyond the mucous membrane into the uterine substance, hypertrophy of the latter is always present, a statement which I have never been able to substantiate.

"Occasionally in this affection blood-clots are found in the cavity of the uterus, but I remember cases where a slight hydrometra was present simultaneously with an accumulation of tough mucus, which showed not the slightest trace of an admixture of blood, a proof that the hæmorrhage took place entirely, and only in the parenchyma. The mucous membrane of the cervix and of the vaginal portion never participates in this disease."

In a case of Herxheimers' (10), quoted by Palmer Findley, as one of apoplexia uteri, while there was plugging of the uterine and vaginal arteries, this seems to have been due to embolism rather than sclerosis.

In the more recent literature on this subject I find that Popoff (11) describes it in a patient aged 40, in whom there were hæmorrhagic infarctions in the substance of the uterus, with endarteritis and calcareous degeneration of the uterine artery. Both uterine arteries were also plugged by thrombi, and Popoff attributes the hæmorrhagic infarction to embolism or thrombosis of the uterine vessels, and says that the changes in the uterus

can only arise when the closure of the vessel is rapid, bi-lateral, and simultaneous. This is a different process from a slowly progressing sclerosis.

Von Kahlden (12) describes eight cases, all in advanced life, the ages and cause of death, or chief lesion found post-mortem, being as follows:—at 75 from pneumonia, at 75 from endocarditis, at 52 from cancer of the gall-bladder with metastases, at 66 from fatty heart, at 75 from bronchitis, at 76 from bronchitis and emphysema, at 83 from senile changes in all the organs, at 87 from pneumonia. To these cases of von Kahlden we may add two reported by Dittrich (13), in patients aged 65 and 68, who died from affections of the lungs.

Palmer Findley (14), in his interesting paper on Arteriosclerosis, puts these cases alongside of Reinecke's. But they differ in these three features: the patients were well up in years, some of them many years past the menopause, the cause of death was not related to the uterine lesion, and the hæmorrhage associated with the sclerosis was trivial. His own case belongs to this group, and from the fact that in it we have the clinical record and pathological condition given with great detail, I quote it more fully. The patient, aged 70, was in good health up to five months before death, when she began to suffer from insufficient heart action and extreme anæmia. Fourteen days before her death she was seized with a pain in the right side of the chest that was immediately followed by spitting of blood and some vomiting. Simultaneously with the onset of the pain in the chest there appeared a pain in the hypogastrium, and this was followed by a slight bloody discharge from the uterus. At the post-mortem there was found general sclerosis of the arteries of the body, the uterine artery being calcareous throughout almost its entire extent. On opening the uterine cavity a small quantity of bloody secretion was found, and the endometrium was of a dark red colour; the cervical mucosa was apparently normal.

On the cut surface of the corpus the blood-vessels stood out prominently, the lumina gaping and the walls thick and calcareous. Numerous small blood extravasations were seen in the uterine wall, giving a mottled red and grey appearance. Microscopic sections of the uterine wall showed an intense blood infiltration of the endometrium, and to a variable depth of the uterine wall. The walls of the arteries were greatly

thickened, but particularly in the tunica media, though the intima and adventitia shared in the hyperplasia. In some of the vessels calcareous deposits were found, arranged in a crescentic, annular, and segmentary manner.

These cases of "apoplexia uteri," associated with arterio-sclerosis, belong to a different category, and it is noteworthy that the patients in whom this condition of apoplexy has been described were past the menopause. This leads up to the question—how is the bleeding in cases like my own caused? It does not seem to be a case of vessels with weakened walls, for it is interesting that we do not find hæmorrhage into the substance of the uterine wall as in the cases of so-called apoplexy. Such weakening of the vessels associated with slight hæmorrhage has recently been described by Gottschalk (15) as a cause of bleeding after the menopause. The patients were multiparæ of 56 and 61 years respectively; the mucosa was necrotic and broken up by hæmorrhages, the walls of the arteries, especially the media, showing retrogressive changes.

It is rather a case of vessels with rigid walls, which have lost their power of vaso-motor contraction. These are not a source of danger to the patient, apart from the changes of the menstrual period. It is these changes, plus the condition of the arteries, that cause the dangerous hæmorrhage. A like condition of the arteries has been described as a cause of post-partum hæmorrhage by Küstner (16). The patient, a v-para, died from hæmorrhage with a contracted uterus, the hæmorrhage apparently coming from a single vessel in the placental site, the size of the radial artery, which had not been closed by uterine contraction.

The etiology is obscure. In this paper we are dealing with sclerosis of the vessels, and not sclerosis of the uterus, which has been the subject of an interesting discussion before the Society of Obstetrics, Gynecology, and Pediatrics of Paris (17). But it is of interest in passing to draw attention to the point of view taken by Richelot, who drew a distinction between sclerosis and true inflammation. The former depends on vascular changes, the latter on infection. I refer to this because I have quoted Bland Sutton's (18) view that the changes in the vessels are due to infection.

As regards the diagnosis, I would only say that it cannot

be diagnosed during life. By the history and careful examination, supplemented if necessary by curetting, we can exclude such causes as the retained products of conception, or malignant disease; but we have no means of ascertaining the condition of the blood-vessels of the uterine wall. Curetting will throw light on the condition of the capillaries in the mucosa, which undergo changes in endometritis. This case, however, belongs to a different category, both in its clinical phenomena and the seat of the lesion.

A still rarer cause of hæmorrhage, due to the condition of the vessels, has been described by Pilliet and Baraduc (19), in which there was angioma of the vessels. Gottschalk (15) has recently added another cause after the menopause.

The condition of the arteries in other parts of the body does not give information as to that of the uterine vessels, and we have seen that arterio-sclerosis is found in them without being present elsewhere.

The only treatment is hysterectomy.

The cases that have come under my notice in the study of the literature of the subject fall into three groups:—

1. Cases of arterio-sclerosis, usually in women advanced in life, with hæmorrhages and other marked naked-eye changes in the uterine wall, but no external bleeding of consequence. This condition was first described by Cruveilhier under the term apoplexia uteri, and subsequently by Rokitansky and Klob. Examples have been given recently by Popoff, von Kahlden, Palmer Findley, and Dittrich.

2. Cases of uterine hæmorrhage, so severe as to call for hysterectomy, of which no pathological account is given, or nothing was found to account for the bleeding. To the former category belong Martin's (20) cases, and to the latter one reported by Switaliski (21).

3. Cases of severe hæmorrhage, calling for hysterectomy, in which arterio-sclerosis is the prominent lesion. While other minor changes in the mucosa are present, such as small-celled infiltration, there is no evidence of hæmorrhages or infarctions, such as characterise the first group. Of this I can find only eleven cases recorded besides my own, namely, three by Bland Sutton, four by Reinecke, one by Pichevin and Petit, two by Pozzi,

and one by Simmonds. Perhaps Morisani's case should also be included. The fact that only twelve have been recorded gives no data as to its frequency, because it is a condition difficult to recognise.

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Clinical Records

PAROTITIS OF ABDOMINAL ORIGIN

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PAROTITIS following disease or injury of the abdominal or pelvic contents has been recognised for many years, but, its exact etiology has remained more or less of a pathological puzzle.

Various explanations of the connection between the abdominal lesion and the resulting parotitis have been suggested. Thus some maintain that it is due to direct pyæmic infection from the abdominal focus; some, that it arises from infection from the mouth along Stenson's duct; whilst others assert that the inflammation is due to the "sympathetic connection" which exists between the parotid and certain abdominal or genital organs, one evidence of which "sympathy" is seen in those cases where orchitis or ovaritis is met with as a sequence of ordinary mumps.

In an interesting paper (*Annals of Surgery*, Dec. 1904), Dyball points out that none of the above theories will stand critical examination.

For example, amongst the many cases which have been recorded by Stephen Paget and others, while a certain number —some 5 per cent.—occurred in the course of puerperal pyæmia, it is impossible to suppose that in all the other cases the parotitis was the only secondary symptom of a true pyæmia; and further, in many of these cases suppuration did not occur in the gland.

It is also argued that if this form of parotitis were due to microbic infection along Stenson's duct, it would not occur, as it occasionally does, following some temporary non-suppurative derangement of the generative organs, such as that due to a blow on the testicle, the passage of a catheter, or the insertion of a pessary, conditions in which oral sepsis may be excluded.

Furthermore, while from many general or local causes a patient may suffer from well-marked oral sepsis, this comparatively seldom gives rise to parotitis, unless some abdominal lesion be present; while, on the other hand, when such abdominal lesion is present, the sub-maxillary or sub-lingual salivary glands are never affected like the parotid, and this probably would be the case if infection from the mouth was the sole cause.

Dyball's conclusions as regards the etiology of this form of parotitis are as follows :—

1. That it is due to the action on the glands of toxic substances absorbed into the blood and derived from (*a*) the secretions of certain organs modified by disease or injury; (*b*) toxins of microbic origin absorbed from the alimentary canal, bladder, etc.; or (*c*) products of deranged digestion.

Suppuration is not essential, but is due to the fact that after such poisoning the gland loses its power of resistance, and may then be infected through Stenson's duct or by the blood stream.

In connection with the above theories the following five cases which have come under the writer's notice may be of interest :—

1. A girl, aged 8, admitted to the Infirmary suffering from double suppurative parotitis of four days' duration.

The pulse was 150 and running; the temperature 104.5°; the child semi-conscious.

Incisions were made and pus evacuated, but the child died a few hours after admission to hospital. At the post-mortem examination a small localised tuberculous abscess was found behind the peritoneum in connection with caries of one of the lumbar vertebræ.

2. A labourer, aged 40, was admitted to the Infirmary suffering from symptoms of obstruction of the bowels, abdominal pain, and distension of some five days' standing. Soon after admission, as the result of a large enema, flatus was passed, and the obstruction was eventually overcome. The day following he developed a marked double parotitis. This passed off in two or three days without the occurrence of suppuration.

3. A girl of 8, seen in consultation with Dr Underhill and Dr John Thomson. In this case there had been an attack of obstruction of the bowels with local peritonitis. An abdominal abscess had formed, which pointed at the umbilicus, and was opened and drained. A few days later a suppurative parotitis of the left side occurred. The abscess burst into the external auditory meatus, and was opened behind the angle of the jaw and drained. A perfect recovery followed.

4. An Oxford undergraduate, aged 22, a well-known athlete, seen in consultation with Dr Graham Brown.

He had been suffering for some three weeks from typhoid fever. Parotitis came on rapidly on the left side, followed in 36 hours by involvement of the right gland. The swelling was enormous, and the patient became considerably cyanosed. By the time I reached the house in the country where he was

staying, he was evidently moribund, consequently no incisions were made.

5. A lady, aged about 60, seen in consultation with Dr Bruce and the late Dr Matthew of Corstorphine. Here the parotitis occurred in course of an attack of influenza. The swelling was on the left side. Incisions were made and a very small quantity of pus found. She died a day or two later.

The reason for including this case in the list of those following abdominal disease is, that some years before her fatal illness she had consulted the late Dr Thos. Keith on account of an abdominal swelling, and was told that she had a large inoperable ovarian cyst. She suffered a good deal of pain from this growth for several years, but of late it had not troubled her so much. It is, of course, impossible to prove any connection between the ovarian disease and the parotitis; but considering that over 20 per cent. of the recorded cases have arisen in patients with diseased ovaries, it seems possible that such a connection may have existed. This appears all the more probable when one remembers that in long standing cystic disease of the ovaries certain constitutional disturbances are sometimes met with, which can only be explained on the hypothesis that they are caused by the formation and absorption of toxins due to such ovarian disease.

SOME CASES OF PERFORATING GASTRIC ULCER

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1. WILLIAM COPELAND, æt. 40, was admitted to the Western Infirmary on July 21, 1904, in a state of collapse, and complaining of pain in the belly. He was a pale and rather slightly built man, but though never very robust looking, he had, up till his late illness, been regular at his work for years, and considered himself to have been in good health, though subject to occasional fits of indigestion.

For fourteen days before admission he had had some pain in the stomach, coming on shortly after food and lasting about half an hour. He had had no vomiting, and there had never been anything noticed about his motions that could be interpreted as due to hæmorrhage from the stomach. About 7 P.M. on the evening of the 21st July, while riding a bicycle, he was suddenly seized with a most violent pain, at first in the upper part of the abdomen, but soon felt all over the belly, but nowhere else. The pain was so sudden in its onset, and so commanding

in its character, that he nearly fell from his bicycle; but fortunately he was able to dismount and was helped into a cab and taken home. Soon after he was seen by his doctor and sent to the Western Infirmary, where I saw him about 10 o'clock, shortly after admission.

He looked very pale, but that was said to be usual with him, and he was in a profuse perspiration. The pulse was fairly strong, 60 per minute, and temperature slightly subnormal. Pain was less than it had been, and the patient appeared to be rallying from what must have been a very profound state of collapse. The abdominal muscles were tense and hard all over, and there was general tenderness, most marked, however, in the epigastrium. There was no retraction of the abdomen, but rather a slight degree of fulness, though there was nothing in the way of abdominal distension. There was, perhaps, a slight degree of diminution of the area of liver dulness. The thighs were kept slightly flexed on the abdomen.

As the patient was averse to operation and I had another case to operate on, I left him till 11.30. Then the pain seemed easier and the legs could be extended. The abdominal wall was still rigid and if anything rather more prominent, and there was now a distinct diminution of the area of liver dulness. He consented to operation, and I opened the abdomen in the middle line in the epigastric region. A slight amount of gas and greyish turbid fluid with flakes of lymph escaped. The fluid found during the operation was very small in amount and contained only a few flakes of lymph and there was nothing that could be recognised as stomach contents.

On drawing down the stomach, which was moderately distended with gas, an ulcer was found on its anterior surface near the lesser curvature and slightly to the right of the middle line. There was a considerable amount of hard indurated tissue, and in its centre a round punched-out aperture about the size of a crow quill. This was surrounded by a few adherent flakes of lymph, but there were no adhesions to be seen. Apart from the fluid and lymph flakes there was no appearance of peritonitis except on the stomach wall round about the ulcer, where there was some redness.

I covered over the perforation by sewing together the healthy peritoneal surfaces that surrounded the ulcer, and reinforced this by stitching the small omentum over the line of suture. All the pouches of peritoneum around the liver were carefully swabbed out with sterilised gauze and the parts washed with saline solution. The great omentum was carefully drawn up and the small intestines inspected, but everything looked remarkably healthy. No attempt was made to cleanse or drain

the lower part of the abdomen, and the abdominal wound was closed without drainage.

The patient made an uninterrupted recovery. The temperature never rose above 99°, and there was never any pain. For the first four days nourishment was given per rectum, but after that small quantities of peptonised milk were given by the mouth and this was gradually increased. He left hospital in September for the Convalescent Home, and has now been at work for some time and is in excellent health.

2. E. C., æt. 25, waitress, a well-nourished and healthy-looking young woman, was admitted to the Western Infirmary shortly before midnight on 25th January 1902.

About four hours before admission, while sitting drinking some lemonade, she had been suddenly seized with a violent pain in the upper part of the abdomen. The pain soon became general over the abdomen, but was confined to that region, and was followed by some vomiting. She felt very ill and was seen by a doctor, who sent her to hospital. On admission, patient had a drawn and anxious look about the face, and the thighs were kept slightly flexed; the temperature was 100°, and the pulse 112 and rather thready. There was no great collapse, and patient said she felt rather better than she had been. The abdomen was tense and hard, but not in any way swollen; there was great tenderness, most marked in the right flank and epigastrium. No ascites was present, and there was no diminution of the area of liver dulness.

Patient had been going about her work up till that evening and had considered herself in good health, though she had been subject to fits of indigestion. There had never been, however, any symptoms which would point definitely to gastric ulcer.

I opened the abdomen in the epigastric region and a very little greyish cloudy fluid was seen over the omentum. I pulled down the stomach, which was in no way collapsed, and found the anterior wall quite healthy. The omentum was then divided, and the posterior wall examined. Here I found near to the middle of the lesser curvature a fairly large area of induration with a small perforation about its centre from which gas exuded. This was closed by a stitch, and some Lembert sutures were used to draw together over the base of the ulcer the healthy peritoneal surfaces on each side. The fluid, which was not very great in amount and contained a few flakes of lymph but nothing definite in the way of stomach contents, was sponged away, and the upper part of the abdomen irrigated as well as possible. The wound was closed without any drainage and healed *per primam*. The temperature

shortly after operation was 97.6°, but soon rose to 99°, and next day was 103°. It fell again the following day to normal, and remained so throughout the case.

Feeding was at first by the rectum, but soon some fluid was given by the mouth and convalescence was uninterrupted. Shortly after leaving hospital she got married and has had one child. At the present date she is well and the scar is sound. She has had no trouble with the stomach during these last three years.

In both these cases perforation occurred in persons who were going about their work and never suspected that they had ulceration of the stomach, and probably the situation of the ulcer, near the lesser curvature, accounted for the absence of well-marked symptoms.

In both, the stomach was practically empty at the time of perforation, so that the ingestion of food was not the determining cause. In the one case the exertion of bicycling may have induced the rupture, and in the other possibly the distension of the stomach by gas may have contributed.

The features in these cases which favoured recovery I take to be:—

The probably empty condition of the stomach.

The situation of the perforations, which did not admit of much spilling of what little contents were in the stomach.

The small amount of peritonitis present.

The early operation.

3. In a third case I think perforation occurred, though the patient recovered without operation, as the mischief was limited by peritoneal adhesions.

E. M., æt. 38, a domestic servant, was seen by me on January 25, 1904. She had suffered with indigestion and pain after food for a month or two. From the 19th to 21st January she had been laid up and attended by Dr C., who informed me that at that time she had pain and tenderness over the stomach with some dilatation and splashing. She was relieved by vomiting and the administration of bismuth. On 21st January there was still some tenderness over the stomach but no dilatation, and next day she was up and going about the house.

On the evening of 25th January, about 9 P.M., she was suddenly seized with acute and severe pain in the upper part of the abdomen, which was followed by tenderness and a feeling of prostration.

When I saw her about 11 P.M., the temperature was 96.6°, the pulse 48, gradually rising to 60. There was great pain and

tenderness confined entirely to the upper part of the abdomen, but no evidence of any generalised peritonitis or even peritoneal irritation, that is, there was no rigidity or tenderness of the lower part of the abdomen. The pain grew rather less, and she gradually rallied from the shock. Early next morning she was removed to hospital, but no operation was undertaken, and she made in time an excellent recovery with rest and rectal feeding.

4. The last case is one where subphrenic abscess supervened about a month after operation for perforation.

The patient was a very anæmic looking girl of 24, from Dalry, who had long suffered from indigestion. About a week before admission to hospital she had been attacked with violent pain in the abdomen, and collapse, with rigid and tender abdomen, and clearly had some peritonitis at that time. Her doctor suspected perforation of the stomach and advised her removal to hospital, but she refused to be moved, and got so much better in a few days that, contrary to all advice, she resumed work for a few hours. She was then again seized with pain and collapse, and twenty-four hours after the second attack was admitted to hospital (on 20th August 1904). When I saw her she was very ill and complained of pain all over the abdomen. Temperature was 102°, the pulse feeble and rapid. The abdomen was distended and tender, especially along the border of the lower costal cartilages on both sides.

There was a considerable amount of free fluid present, and a tympanitic note was present in the middle line and over the liver area right up nearly to the nipple line. I opened the abdomen in the middle line above the umbilicus and a large amount of gas escaped.

There was a large amount of brownish-looking fluid present, and the peritoneum first exposed was red and granular looking.

On the anterior surface of the stomach, towards the cardiac end, was a perforation about the size of a sixpence. This was about two-thirds closed by fairly strong adhesions to the parietal peritoneum, and the whole area around was much inflamed.

I think it is quite possible that the rupture had taken place a week before and had become closed by adhesions which had given way on exertion. Another small and apparently quite recent perforation was present a little way off towards the cardiac end, apparently connected with a separate ulcer. The perforations were closed and the fluid as far as possible removed by sponging and turning the patient over on her side. Several pints were removed in this way. The peritoneum over the liver and

diaphragm was much inflamed and coated with lymph, which I sponged off with gauze. The small intestines appeared fairly healthy. I irrigated as well as possible with saline fluid and left some in the abdomen.

No satisfactory provision for drainage could, I thought, be made without an undue prolongation of the operation, and I closed the wound, trusting to the recuperative power of the peritoneum, though, indeed, I had very little hope of the patient recovering.

Next day, however, she was very much better than I could have expected, and continued to improve from day to day. There was some superficial suppuration of the wound from contamination with the septic fluid from the abdomen, and a week after the operation there was a little pain over the liver and peritoneal friction could be heard with the stethoscope. This lasted only a couple of days, and appeared to get perfectly well. On the whole, for nearly four weeks she was very well, temperature kept normal, and she was able to take nourishment and was gaining in strength. Then without any rigor or pain of any kind the temperature rose one day to 102°; it fell again and remained normal for a day, but again began to rise and there was afterwards a daily rise for an hour or two to 100° to 101.8°. She complained of no pain, but began to get thinner and weaker. There was obviously pus somewhere forming, but no clue to its locality could be got. On 26th September she had some pain in the *left* side, and well marked friction could be heard over the lower part of the left lung, and there was a marked absence of abdominal respiration, but no bulging of intercostal spaces.

It was now tolerably clear as to what was the state of matters and I advised operation; but the patient would not consent, and I did not feel disposed to urge it, as I was just about to leave home, and one of the physicians to the hospital, who had seen her along with me, thought it was quite a case for delay.

On the 3rd October, seven days later, Sir Hector Cameron evacuated a large subphrenic abscess on the left side. The temperature fell, and patient appeared to do well for a day or two, but died on the fifth day after the second operation from general exhaustion.

What seems to me remarkable in this case is the good attempt made by the peritoneum to cope with the enormous dose of poison it was subjected to. The abdomen contained at the time of operation a large amount of fluid of a very septic nature, as was evidenced by the suppuration which it caused in the fresh wound in the parietes. I would suggest, as a possible

explanation, that a certain degree of immunity had been obtained from the attack of peritonitis a week before.

The peritonitis which existed over the liver and right side of the diaphragm seemed to recover, though giving rise to some transient symptoms about the seventh day.

The abscess which formed on the left side arose, I think, from some pouch that I had been unable to clean out, and I do not think that I could have provided drainage at the time of operation that would have been efficient without resorting to procedures that would have added very considerably to the risk. My only regret is that I did not attempt earlier to evacuate the abscess.

In conclusion, I have to thank Sir Hector Cameron, in whose wards I was acting, for permission to publish these cases.

THE USES OF ARGYROL IN OPHTHALMIC PRACTICE

By ANGUS M'GILLIVRAY, C.M., M.D., F.R.S.E.,
Lecturer on Ophthalmology, St Andrews University; Ophthalmic Surgeon, Dundee Royal Infirmary; Surgeon, Dundee Eye Institution, etc.

DURING the past few years, ocular therapeutics have been greatly enhanced by the introduction of certain new silver products, such as protargol and argyrol. In the November 1903 issue of this journal the writer gave a detailed account of the ocular affections in which he had found the use of protargol beneficial. During the past year he has made an extensive trial of the newer preparation—argyrol—and, having found it in several points to be superior to protargol, he has ventured to place before the readers of the *Journal* the results of his investigations.

One of the most outstanding features observed in the application of argyrol, even in such strong solutions as 20 and 25 per cent., is its soothing, almost anodyne, effect. This is not so when nitrate of silver and protargol are employed, even in very weak solutions. As to its effect on the growth of micro-organisms, bacteriological experiments have shown that argyrol possesses more powerful germicidal properties than either protargol or nitrate of silver in the strengths in which these drugs can be tolerated by the eye. The absence of pain and the frequency with which it can be instilled without causing irritation to the tissues, together with its superior germicidal property, mark

argyrol as superior in every way to the older preparations of silver in ocular therapeutics.

In the following affections of the eye, argyrol can be specially recommended :—

Hypopyon corneal ulcer, a condition frequently met with among masons and quarrymen, and ending in disastrous results if not treated promptly and energetically, is soon checked by applying a 25 per cent. solution directly to the ulcerated area. The best results are got by keeping the patient in bed, preferably in hospital, where he can be kept under careful observation, and the remedies properly and regularly applied. The mode of applying the solution is as follows. Place the patient's face so that the chin is on a level with the forehead and the head slightly turned to the side of the sound eye. With the fore-finger and thumb of one hand the eyelids are kept apart, and with a pipette, held in the other hand, several drops sufficient to flood the cornea are applied directly to the ulcer. After a minute the eyelids are allowed to close, and any super-fluous solution is wiped away with a mop of cotton wool. This is repeated every two hours during the day and once or twice during the night. Atropine drops, grs. 4 to the ounce, are instilled three times a day to break down adhesions of the iris to the lens capsule, and keep the eye at rest. Paracentesis of the cornea, to remove the pus from the anterior chamber, is rarely employed, unless the pus be in considerable quantity, and cauterisation of the ulcer is seldom needed. In short, the treatment employed is—frequent and free application of argyrol solution 25 per cent. directly to the ulcerated area, general rest by keeping the patient in bed, and local rest to the eye by the use of atropine and a large double shade. An improvement is noticed within twenty-four hours, the ulcer looks healthier, and the hypopyon is reduced in quantity or has entirely disappeared. Treatment is continued till the ulcer is completely healed. What strikes one is the comparative rapidity of the healing process, the entire absence of pain after application of the solution, and more important still, the small cicatrix left after the ulcer is healed as compared to that found after cauterisation with the actual or electric cautery. The corneal tissues do not seem affected by the solution, even considering its strength and the frequency of its application.

In all forms of *acute conjunctivitis of the catarrhal type*, applications varying from 5 to 25 per cent. are most useful. Applied three times a day a speedy and painless cure is got in about a week. The only disadvantage got from its use is the staining of handkerchiefs and the skin of the cheek. Stains can be removed from linen by immersion in perchloride of mercury

solution 1 in 500, and from the cheek by soap and water. The stain produced by argyrol is not the same as that got after the use of nitrate of silver, and, so far as our experience goes, we have not seen *argyrosis*, that is permanent staining of the conjunctiva, so commonly met with after the free use of nitrate of silver or protargol.

In *chronic forms of conjunctivitis*, argyrol is not so useful as the older remedies. When there is hypertrophy of the conjunctiva from long-standing inflammation, the daily brushing by the surgeon with a 2 per cent. solution of nitrate of silver gives much better results.

In *blennorrhœa neonatorum or adultorum*, we have had no experience. It is highly recommended by well-known writers for these two serious affections, but in much stronger solution.

In *follicular conjunctivitis* we have found argyrol useful in relieving the discharge, and converting the condition into one of simple folliculosis, when the use of unguentum plumbi subacetatis 2 per cent. applied at bed-time for a few months usually suffices. In severe cases expression of the follicles with Knapp's roller forceps, followed by argyrol and the lead ointment, is useful.

In *granular conjunctivitis*, the drug has not given us such satisfactory results as the older remedies. We have used it after expression with Knapp's roller forceps, but, contrary to our expectation, the condition did not seem much improved by it.

In *phlyctenular conjunctivitis*, attended by an unusual amount of conjunctival discharge, argyrol is useful, but only as an adjuvant to yellow oxide. In *marginal and corneal phlyctenules* our experience of the drug, when used alone, is disappointing. It is inferior to the well-known methods of treatment.

Mild dacryocystitis, or *simple catarrh of the tear duct*, is relieved by argyrol, and beneficial results are got in *mucocele* by using 10 to 25 per cent. solutions three or four times a day and emptying the lachrymal sac by pressing over it with the finger after the canaliculus has been divided and a large probe passed. The discharge from the sac soon becomes mucoid and shortly afterwards normal in character. In order to get the best results, the solution must find its way into the sac and down the duct, which can frequently be done by manipulation over the sac with the finger after the inner canthus is flooded with the solution.

In *testing the potency of the tear duct*, argyrol solution is useful. A few drops of a 5 per cent. solution are instilled into the eye in the ordinary way and any superfluous solution wiped up. In a few minutes, if the nose be blown, the handkerchief becomes stained with the brown solution.

We have used it recently in preference to protargol in preparing the conjunctival membrane prior to operative interference on the eye, *e.g.* in cataract extraction. Here we have had gratifying results. It causes no irritation and can be used more freely, and in strong solution if need be.

It is said to keep better than either nitrate of silver or protargol, but without chemical examination it is impossible to say. So far as we have seen we have no reason to doubt its property in this direction.

ON A CASE OF HODGKIN'S DISEASE IN A CHILD[1]

By ALBERT HENDERSON, M.A., M.D.,
Medical Officer, Aberdeen Dispensary

THE following case seemed to me of some interest as possibly illustrating the remedial effect of an intercurrent disease.

Bessie C. came under my care at the Aberdeen Dispensary when she was a few months old. I shall not trouble you with her history previous to a year ago, further than to say that she had well-marked signs of inherited syphilis, which was treated in the ordinary way.

Last summer, when she was five years old, she was again brought to me with a large swelling on the right side of the neck, composed of a mass of enlarged lymphatic glands. These were firm in consistence and distinct from one another.

As this swelling did not yield to treatment, she was sent into the Children's Hospital on September 17.

On September 28, Dr Rose operated and removed the glands. These extended deeply to the mediastinum, and from the middle of the neck to the posterior triangle. Some were adherent to the jugular vein. For the most part they were easily shelled out and showed no sign of breaking down, presenting the appearance of numerous small potatoes.

The glands were examined by Dr Duncan, Pathologist to the Hospital and Assistant to Professor Hamilton, who reported that they had the appearance characteristic of Hodgkin's disease.

Recovery from operation was uneventful. From the time of her admission to the time of her leaving hospital on December 10, her temperature was irregular, reaching 102° and even 104° sometimes. Twice, one week of normal temperature supervened.

[1] From a paper read at a meeting of the Aberdeen Medico-Chirurgical Society.

She suffered a good deal from bronchial catarrh, and during the last two weeks there developed dulness at the apex and base of the right lung. She also had an attack of chickenpox while in the ward.

During the last week of her stay she became much worse. Diarrhœa set in, dyspnœa was very marked, with persistent short cough, while the emaciation and weakness were so considerable that the child was unable to walk.

Her physical state then was as follows:—

Lungs as above.

Liver much enlarged, extending to 3 inches below the ribs in the mammary line, and to the left of the middle line.

Splenic dulness extended from the spine to 2 inches from the left of the umbilicus, and reached into the left iliac fossa to within 1 inch of the A.S.S.

Lymphatic system.—Enlarged glands were felt in the axillæ, groins, right submaxillary and occipital regions. There was no enlargement of the epitrochlear glands.

Urine was normal.

Blood—	
Hæmoglobin	50 per cent.
Red blood corpuscles	2,192,000.
Leucocytes	5,800
Differential count—	
Small lymphocytes	5.4 per cent.
Large do.	10.9 „
Do. hyaline lymphocytes	11.3 „
Transitional	2 „
Polymorphonuclear	69.1 „
Eosinophilous leucocytes	.5 „
Mast cells	.5 „
	99.7

Treatment while in hospital was liq. arsenicalis.

About two weeks after leaving the hospital she took measles, and suffered very severely from it, and from subsequent catarrhal pneumonia.

Three months after leaving the hospital, that is, on 13th March 1905, the following notes of her state were made:—

She was well nourished and walked about with ease. Her weight had increased over a stone since leaving hospital.

Liver extended 1½ inches below the costal margin in the mammary line, and could be felt 2 inches to left of middle line, disappearing under the costal margin. Spleen reached to

2¾ inches to left of umbilicus at that level, and down into iliac fossa to 1½ inches from A.S.S.

Lungs.—A few rhonchi present, percussion note normal.

Temperature normal.

Lymphatic system.—Glands, the size of a pea, were felt in the groins, one under the scar of operation, one in the occipital region, and at each angle of the jaw one; these latter two being slightly larger.

There were none in the axillæ to be felt.

Blood—	
Hæmoglobin	70 per cent.
Red blood corpuscles	3,448,000.
Leucocytes	9,800.
Differential count—	
Small lymphocytes	38.5 per cent.
Large do.	13.9 „
Do. hyaline lymphocytes	1.4 „
Polymorphonuclear	43.9 „
Eosinophilous leucocytes	1.8 „
Transitional forms	.5 „
	100.0

The only medicinal treatment she had received during convalescence was cod-liver oil.

Her recovery to a comparatively good state of health from a state which at one time seemed so grave, makes one wonder whether the attack of measles did not play the part of a remedial agent.

In cases of leucocythemia, some writers have noticed the beneficial effects of intercurrent diseases.

In three cases to which they refer, the effect of tuberculosis on the leucocythemia was seen in a reduction of the leucocytes.

In the *British Medical Journal* of May 10, 1902, Dr Parker says: "The addition of septic or other infection usually causes a marked reduction in leucocytes, though the improvement may be only temporary. Elsner and Groat refer to instances of typhoid, sepsis, and influenza where this has been seen."

"Looking at the above-mentioned results of a second infection," he says, "it is only natural to inquire whether any curative measures might not be based upon an imitation of the process."

At the date of writing, April 15, my own case still remains in comparatively good health, and to all appearance an ordinary member of her family. One or two glands, how-

ever, have become considerably enlarged near the site of the original swelling in the neck.

I am indebted to Dr Rose, Senior Surgeon to the Royal Aberdeen Hospital for Sick Children, for the perusal of notes of the case taken there, also to Dr Duncan, Pathologist to the Hospital, and to Mr James Adams for the differential count.

A CASE OF EPIGASTRALGIA

By PETER HOWIE, M.B.,
Medical Officer, Aberdeen Dispensary

MRS L., aged about 58 when I first attended her, was a delicate-looking woman who had been subject to dyspepsia for many years, and required to be careful as to what she ate, although somewhat neglectful at times. She had suffered a great deal from worry and anxiety through illness in her family. In December 1901 she fell down a stair, injuring her left side, though nothing more than bruising with tenderness over the parts could be made out. Her husband, who had heart disease, died suddenly in January 1902 of angina pectoris, and for some time after she was in a feeble state of health, but recovered and kept well until 28th June, when she had a severe attack of hæmatemesis without any serious previous gastric symptoms. She was very ill. The hæmorrhage was considered to be due to ulcer of the stomach, and rectal feeding was continued for a fortnight. When she recovered sufficiently she went to the country, and slowly returned to a better state of health; but from that time onwards until she died, she was subject to attacks of severe pain in the epigastrium, slight at first, but gradually becoming more severe. They came at irregular intervals; lasting sometimes only a short time, on other occasions for an hour or more. She described the pain as a pressing, dull pain; at other times burning. They were always aggravated, and often initiated, by bodily exertion. Most severe about the region just above the umbilicus, it radiated up towards the thorax and also downwards to the iliac regions. During 1904, in January and February, she was ill and confined to bed with these attacks, and from that time onward she was quite an invalid, unfit for household duties. In July and November they were again more severe. In January of this year the attacks became more frequent and lasted much longer, and she was almost constantly in bed. On the evening of Sunday, 12th February, she had

been up, and expressed herself as feeling better than she had been for some time, went to bed, and shortly afterwards complained of being sick, and vomited, when her daughter noticed her looking strange, and could not get her to answer.

I was called about 12.30 on Monday morning, 13th February, and found her quite unconscious, apparently suffering from cerebral hæmorrhage. The left side was quite evidently paralysed, and some slight convulsive spasms occurred in the arm and leg of the other side. She never rallied, and died on the 14th.

During her long illness she had become considerably emaciated, and one naturally examined for evidence of malignant disease. Her abdomen was very easily palpated, and repeated examination failed to reveal anything of the nature of tumour or thickening. There was slight tenderness over the stomach, no enlargement of liver or spleen. The abdominal aorta was very easily felt. It gave the impression of being slightly enlarged, was mobile, and could be moved either way laterally, and pulsated strongly; patient felt and complained about it, and it could be seen, and suggested aneurysm. It was markedly tender to pressure. There was marked tenderness close beside it along its course, especially along the vertebræ, which could easily be felt through the abdominal wall. Pressure over the sensitive areas gave rise to the same pain which patient complained of. The urine was normal. No œdema ever occurred. Bowels were inclined to constipation, with occasional diarrhœa. No melæna. Flatulence was common, and eructations frequent. Vomiting very rarely occurred, except after hæmatemesis. Lungs were normal. Heart, from the very first was slightly quickened and occasionally intermittent. The pulse gradually became quicker, more irregular, and intermittent. The second aortic sound latterly was decidedly accentuated with a sharp sound, a mitral systolic murmur appeared, but the apex did not pass outside the nipple. The radial and temporal arteries were thickened and easily felt, but were not very hard. The pulse was not of markedly high tension. I did not often see her during an attack of the epigastric pain, but she described it as a severe pressing or burning pain, for the most part above the umbilicus, but radiating downwards and laterally as well. Sometimes she said it passed up towards the thorax, and once or twice, before her death, she complained of difficulty in breathing, and I think once she remarked to me the pain seemed to radiate into left arm and shoulder.

From the first the treatment was mainly directed to the stomach, with regulation of diet. Administration of pepsin in

various forms, and latterly, morphia, for allaying the attacks of pain.

What was the nature of the case? What was the cause of the angina-like attacks?

At first I considered the pain gastric, and endeavoured to find out a relationship between the ingestion of food and the onset of pain. The patient always maintained that it did not seem to be the food which raised the pain, and I became of the same opinion myself. Cancer of the stomach was negatived by repeated examination and course of case, and aneurysm of the aorta or of its branches seemed to be put out of question likewise. Then the end came by apoplexy, due to arterio-sclerosis of the cerebral vessels. Before she died I felt sure the pain was not in the stomach or bowels, hence I have called the pain epigastralgia and not gastralgia. I would suggest—and in the absence of a post-mortem examination it can only be a suggestion—that a probable explanation of the case is that there was arterio-sclerosis of the abdominal vessels, specially the aorta and the splanchnic vessels, the mesenteric artery, etc.

The picture of sclerosis as it affects the cerebral vessels and its results are well known, also when it affects the vessels in the limbs, producing attacks of sharp neuralgic pains and intermittent paralysis, but several recent writers have been directing attention more particularly to arterio-sclerosis of the splanchnic vessels, and Max Buch in a paper in the *St Petersburger medicin. Wochensch.* for July 3, 1904, holds that a sufficiently definite symptom-complex has been established to enable a diagnosis of the condition to be made with fair confidence.

The epigastric pains usually arise in elderly people over forty or fifty years, for the most part above the umbilicus, occasionally below it. They agree, he says, approximately with the gastralgic attacks of the manuals. Osler says, speaking simply of gastralgia: "The symptoms are very characteristic. The patient is suddenly seized with agonising pains in the epigastrium which pass toward the back and around the lower ribs. The attack is usually independent of the taking of food and may recur at definite intervals. They frequently come on at night. Vomiting is rare; more commonly the taking of food relieves the pain. To this, however, there are exceptions. Pressure upon the epigastrium usually gives relief, but deep pressure may be painful. Stress has been laid on the occurrence of painful points, but they are so common in neurasthenia that very little importance can be attributed to them."

Describing the pains, Max Buch says: "They are sometimes griping (or pressing), sometimes burning or stabbing, or of unqualifiable character. The duration amounts to commonly only

a few minutes, more rarely half an hour or more. Their frequency varies in many cases, mostly many times a day.

The immediate cause of the attacks he mentions are chiefly bodily exertion, especially mounting stairs, assuming the horizontal position, and mental emotion, which he points out are just the same conditions which produce anginal or stenocardiac attacks. He also classifies cases into those which are purely epigastric, and those occurring with anginal attacks, at the same time or alternately.

The main symptoms are sensitiveness to pressure of the abdominal aorta and the adjacent parts, particularly the spinal column. Other signs of sclerosis will be found usually if looked for, accentuation of the aortic second sound, sclerosis of peripheral arteries. The heart may be, but is not always, enlarged.

During the attacks, Buch says, the sensitiveness of the aorta to pressure is increased.

Given a case presenting such features, Buch says, the administration of diuretin (sodio-theobromin salicylate) 3-4 grams daily, or Tr. strophanthi up to 5-8 ♏ t.d.s., will in a very few days, often from the first, lessen the frequency of the attacks and render them milder. Rest, especially rest in bed, aids, but is not indispensable for the good effect which lasts for some time after the treatment stops.

He considers it is not an infrequent condition, and holds that many of the attacks of epigastric pain in old people are really attacks of the arterio-sclerotic abdominal pain.

The explanation of the way in which the arterio-sclerosis may be the cause of the pain is interesting. Several writers have proved that where arterio-sclerosis of the splanchnic arteries was present, the aorta showed sensitiveness to pressure, especially von Engelhardt,[1] who explains the pressure sensitiveness as due to hyperalgesia of the plexus aorticus abdominalis, which lies close to the vessel. Buch confirms this and says he has found also the hypogastric, the cœliac, and other plexuses in the neighbourhood were equally sensitive, and considers the aorta and other vessels are only tender as bearers of these nerve plexuses.

In other words, the arterio-sclerotic abdominal pain is really a neuralgia due to the sclerotic inflammation spreading to the adventitia and peri-arterial connective tissue, so involving the lumbar sympathetic nerves and plexuses. It may well be that long-continued dyspeptic symptoms with disorders of metabolism and the absorption of ptomaines into the system for a lengthened period lead to such sclerotic changes. The attack of hæmatemesis in the present case and the final climax in an

[1] Von Engelhardt, *St Petersburg. medicin. Wochenschrift*, 1895, No. 48.

attack of cerebral hæmorrhage, likewise due to sclerosis, all coming into line as other expressions simply of what was a widespread degenerative change throughout the arterial system, would therefore help to explain rather than obscure its nature.

Births and Deaths registered in Eight of the Principal Towns of Scotland during April 1905

DURING the month of April 1905 there were registered in the towns of Glasgow, Edinburgh, Dundee, Aberdeen, Paisley, Leith, Greenock, and Perth, the births of 4171 living children, of whom 2087 were males and 2084 females. These births are equivalent to an annual birth-rate of 29.0 per thousand of the estimated population of these towns. The equivalent annual birth-rate for the month was highest in Glasgow, 31.1, and lowest in Edinburgh, 24.0. In Leith it was 30.0; in Paisley, 29.7; in Aberdeen, 29.6; in Greenock, 29.3; in Dundee, 27.9; and in Perth, 26.3. The births registered in these towns are 310 fewer than in March, and 109 fewer than in April 1904.

Of the 4171 children, 272, or 6.5 per cent., were illegitimate. This illegitimate rate was highest in Dundee, 9.3, and lowest in Leith, 4.0. In Perth it was 8.1; in Edinburgh, 7.2; in Aberdeen, 7.1; in Glasgow, 6.1; in Paisley, 5.3; and in Greenock, 4.7.

Deaths in these towns during the month numbered 2446, of which 1226 were of males and 1220 of females. These deaths are equivalent to an annual death-rate of 17.0 per thousand. Compared to the returns of March, the deaths are 252 fewer and the rate 1.2 less; compared to the returns of April 1904, the deaths are 428 fewer and the rate 3.3 less. The death-rate for the month was highest in Greenock, 20.5; and lowest in Leith, 12.7. In Perth it was 19.9; in Glasgow, 18.1; in Aberdeen, 17.7; in Paisley, 15.5; in Edinburgh, 15.4; and in Dundee, 15.0. In Perth the death-rate was higher than in March, in Glasgow it was the same as in March, while in each of the other towns it was less than in March.

Of the 2446 deaths, 909, or 37.2 per cent., were of children under five years old; and 605, or 24.7 per cent., were of persons of over sixty. Deaths of children of under five were 48 more than in March, but 75 fewer than in April 1904. Deaths of persons of over sixty were 133 fewer than in March, and 108 fewer than in April 1904.

Deaths of children of under one year numbered 512. This is 31 fewer than in March, and 71 fewer than in April 1904.

The infantile mortality-rate for the month—*i.e.* the deaths of children of under one year per thousand of the average monthly number of births—was 126, a rate which is 3 less than that for March, and 14 less than that for April 1904. The infantile mortality-rate for the month was highest in Perth, 166; and lowest in Leith, 77. In Aberdeen it was 145; in Glasgow, 134; in Edinburgh, 128; in Dundee, 111; in Paisley, 96; and in Greenock, 81. In Glasgow, Aberdeen, Leith, and Perth this rate was higher than in March, while in the remaining towns it was lower.

Deaths from the principal epidemic diseases numbered 239; this is equivalent to an annual death-rate from these causes of 1.7 per thousand. These deaths are 37 more than in March, but 34 fewer than in April 1904. This rate is 0.3 more than that for March, but 0.2 less than that for April 1904. The rate for the month was highest in Greenock, 2.4, and lowest in Perth, 0.4. In Glasgow it was 2.2; in Paisley, 1.4; in Leith, 1.3; in Edinburgh, 1.2; in Dundee, 1.0; and in Aberdeen, 0.7.

There were no deaths from smallpox. Deaths from measles numbered 75, which is 43 more than in March, but 15 fewer than in April 1904. Deaths from scarlet fever numbered 6, the same number as in the previous month. Deaths from whooping-cough numbered 115; which is 2 fewer than in the previous month, but 21 more than in April 1904. Deaths from diphtheria numbered 19; this is 5 fewer than in March, but 3 more than in April 1904. Deaths from enteric fever numbered 8, and from typhus fever 2, these numbers being the same as in the previous month. Deaths from diarrhœas numbered 14, which is 1 more than in the previous month, but 12 fewer than in April 1904.

Deaths from influenza numbered 19; this is 25 fewer than in March, and 2 fewer than in April 1904.

There were 9 deaths from puerperal septic conditions; from malignant disease, 135, of which 68 were ascribed to carcinoma, 9 to sarcoma, and 58 to cancer not otherwise classified. Deaths from heart disease numbered 202; from apoplexies, 125; from premature birth, 93; and from alcoholism, 5.

Deaths from pneumonia numbered 268, and constituted 11.0 per cent. of the total deaths; while those from bronchitis numbered 194, and constituted 7.9 per cent. of the total deaths. Deaths from pneumonia were 20 fewer than in March, but 15 fewer than in April 1904; deaths from bronchitis were 28 fewer than in March, and 39 fewer than in April 1904.

Deaths from phthisis numbered 211; they constituted 8.6 per cent. of the total deaths. They were 43 fewer than in March, and 62 fewer than in April 1904.

Meetings of Societies

Edinburgh Medico-Chirurgical Society

THE seventh meeting of the session was held on May 3—Professor John Chiene, C.B., President, in the chair.

Dr Byrom Bramwell showed: (1) A patient aged 28, suffering from spleno-medullary leukæmia, who was being treated by the X-rays. Before treatment was commenced, the leucocytes numbered 540,000 per c.mm., with 41 per cent. of myelocytes. Marked improvement had occurred since treatment was commenced some five weeks ago; the spleen had diminished in size, and the number of leucocytes was greatly reduced. Dr Bramwell gave an account of another case, one of lymphatic leukæmia, in which, although the leucocyte count dropped to normal under X-ray treatment, there was no improvement in the condition of the patient, who ultimately died. (2) A case of chronic gout in a man aged 52. The case presented enormous tophaceous deposits, of eighteen years' standing, over many of the joints.

Mr Cotterill showed a man, aged 40, with multiple ossified chondromata on the trunk and limbs, in whom there had recently developed an enormous chondro-sarcoma of the right ilium.

Mr Alexis Thomson exhibited a boy, aged 9, suffering from extroversion of the bladder, in whom he had performed the operation of transplantation of the ureters into the rectum (Peter's operation). The boy can now hold his water for eight hours during the night, and for four to six hours during the day. There were no signs of infection having ascended to the kidneys since the operation was performed.

Dr William Stewart showed a coloured sketch of the feet from a case of Raynaud's disease.

Mr Cotterill showed: (1) a large prostate successfully removed by the suprapubic route; (2) photograph of subastragaloid dislocation; (3) photograph of unusual fracture of the femur.

Drs J. V. Paterson and Edwin Bramwell read a paper on two cases of word blindness, which will appear in a future number of the *Journal*.

Dr Thomas W. Dewar (Dunblane) read a paper entitled "A plea for the recognition of the treatment of disease by intravenous injection." In the first part of the paper, he traced the history of the method of intravenous injection from the middle of the seventeenth century down to the present time.

The method is now employed in both acute and chronic diseases. In pulmonary tuberculosis, cinnamic acid and its salts, iodoform, formic aldehyde, and other drugs have been used, whilst quinine, cacodylate of soda, cyanide of mercury, etc., are used in other diseases. The chief objections against intravenous injections, namely the resultant injury to the veins, with thrombosis and embolism, and the negative therapeutic results obtained in laboratory experiments, were discussed and shown to be groundless. Dr Dewar, in closing, recorded several cases in illustration of the beneficial results obtainable by the method he advocated.

The paper was discussed by Drs Vernon Shaw, Philip, Burn Murdoch, and Gulland.

Edinburgh Obstetrical Society

THE sixth ordinary meeting of this Society was held on the 10th May—Dr N. T. Brewis, President, in the chair.

Specimens.—Dr Freeland Barbour exhibited the rare condition of two malignant ovaries from the same patient.

Dr F. W. N. Haultain showed: (1) Acute axial rotation of the uterus with a large calcareous fibroid. On opening the abdomen, uterus, Fallopian tubes, and ovaries were found to be almost gangrenous. (2) Chronic twist of the pedicle of a normal ovary the seat of infarction. The Fallopian tube was involved and had undergone great enlargement, due to interference with the venous blood supply. (3) A Cyclops fœtus with rudimentary mouth and chin. (4) Two specimens of velamentous insertion of the umbilical cord into the placenta. In one a very large vessel pursued an isolated course along the membranes for about four inches. Had this been ruptured, accidental hæmorrhage, probably fatal to the child, would have ensued.

Dr W. Fordyce exhibited a degenerating fibroid from a case of hysterectomy, four and a half weeks after full term labour. The operation was performed on account of a septic uterine discharge with persistent high temperature. The patient made an excellent recovery.

Sir Halliday Croom communicated a paper on "Some Curiosities of Curetting."

After discussing in detail some of the many theories as to the primary etiology of cancer, Sir Halliday Croom laid special emphasis on the extreme value of early diagnosis in malignant cases. The only comparatively certain aid to this early diagnosis of cancer was got from the microscopic examination of the débris removed by the curette. It should be the routine

practice of all operators to submit the tissues removed by curettage to microscopic examination. In doing so two points should be observed. In the first place the microscopist should receive sufficient tissue, and, secondly, he should be given a short *précis* of the clinical facts. .

Even in cases where this rule has been observed, errors may arise, as Sir Halliday illustrated by some cases in which the clinical after-history of the patients seemed to refute the diagnosis made by the microscopist. Though such cases were disappointing, they only went to confirm still more, in his opinion, the necessity of basing all diagnosis on the facts obtained both clinically and microscopically.

As to the accidents which may follow curetting, Sir Halliday cited a case in which stenosis of the os and retention of menstrual discharges for two periods simulating pregnancy had occurred in a young married woman whom he had curetted after an incomplete abortion.

In regard to perforation of the fundus by the curette, Sir Halliday gave the history of a case where in curetting after an abortion the practitioner had perforated the fundus. When seen in consultation there was a loop of intestine prolapsed into the vagina. Though such cases are rare in this country, many cases have been recorded, *e.g.* Harvey's case quoted by Kelly, in which six feet of intestine was cut off. In Hessert's case the bowel was injured during curettage to such an extent that resection of four feet was performed with a fatal result.

In speaking of the disappointments of curettage, Sir Halliday concluded by recounting two cases in which he performed curettage for endometritis in the hope of rendering pregnancy more probable, but in each case the results were the opposite of what had been desired, for uterine atrophic change accompanied by amenorrhœa set in, leading to permanent sterility.

The following gentlemen took part in the discussion which followed :—Drs F. W. N. Haultain, J. W. Ballantyne, Wm. Fordyce, James Ritchie, H. M. Church, Michael Dewar, and the President.

The Glasgow Medico-Chirurgical Society

THE twelfth ordinary meeting was held on May 5—the President, Dr Newman, in the chair. There was a large attendance.

1. Dr J. W. Findlay and Dr J. R. Riddell showed a girl of 9 years of age, the subject of congenital syphilis, and presenting multiple disease of the joints, closely simulating rheumatoid arthritis. The diagnosis of syphilis was based on the presence

of Hutchinson's teeth, and keratitis, deafness, and on the shape of the head. The history was that two years ago, first the right knee swelled and became painful, and then the left; gradually most of the joints in the arms and legs became so affected. A diagnosis of rheumatoid arthritis was made by the family doctor, and the child was treated with iodide of iron and of potassium. When seen early this year, a diagnosis of congenital syphilis was made, and treatment begun by high frequency currents, with improvement in the pain and swelling. Mercury was begun in April, since when the progress had been still more rapid. The swelling of the joints was due to an increase in thickening of the soft parts, and the lesion was probably a chronic synovitis.

The case was discussed by Drs Rowan, Lindsay Steven, Dun, and Robertson, and Dr Findlay replied.

2. Dr Moyes communicated notes on a case of malignant endocarditis, whose special features were sudden onset, rapid course, head symptoms, and a purpuric rash; and Dr R. M. Buchanan, who had made the autopsy, demonstrated various specimens. The clinical history was short. C. C., a cornet-player, aged 51, had a slight shock last September, when evidence of a mitral lesion was found. On March 11 he sent for the doctor, complaining of fulness of the abdomen, which he attributed to dietary indiscretion. On March 12, the abdomen was more distended, pulse and temperature were normal. Nothing of importance could be detected. On March 13, at 4 A.M., he fell into a state of semi-stupor, and at 9 A.M. on that day he was stuperose, without headache, pupils were normal, temperature 100° F., and no paresis could be detected. At 3 P.M. he was unconscious, and the trunk and arms were covered with a purpuric rash, which suggested the possibility of typhus. By 10 P.M. the temperature was 102° F. On March 14 (the fourth day of the illness), he began to vomit black material very early in the morning, and died at 10.30 A.M.

A post-mortem examination (abdomen and chest only) was performed by Dr R. M. Buchanan, who noted that the skin was dotted with a purpuric rash, the spots varying from 1 to 5 millimetres in diameter. The left auricle was much dilated, and the mitral valve showed many vegetations and an ulcerated cavity with flaky exudate. The aortic valve was thickened and atheromatous, and the wall of the ventricle was dark brown and soft and showed miliary abscesses. The lungs were simply engorged. The kidneys were enlarged and congested, and had hæmorrhages and minute abscesses under the capsule; one had an infarction. The spleen was large and soft, the liver very fatty,

and the intestinal wall showed many miliary abscesses. Microscopically, staphylococci were found in large numbers on the vegetations (from which a practically pure culture of the S. aureus was obtained), and in the capillaries in the heart-muscle, kidneys (where they also occurred inside the tubules), the wall of the bowels, and even in the dermis. No source for the infection could be traced, though many might be suggested, such as the nose, genital tract, abrasions, etc. He referred, in conclusion, to a list of twenty-one cases of malignant endocarditis analysed by Banti, in which seven were due to staphylococci, one to streptococci, three to both of these together, eight to pneumococci, while two were unclassified.

This case was discussed by Drs Robertson, Hunter, A. B. Sloan, Alfred Young, Arch. Young, Lindsay Steven, and the President, and Dr R. M. Buchanan replied.

3. Dr Geo. Edington showed a specimen of congenital occlusion of the small intestine, which had been present in an infant of four and a half days of age. There had been no movement since birth; a catheter passed 2½ inches per rectum. Exploration in front of the sacrum showed no bulging gut, but a fibrous cord could be felt. A colotomy was done, and a dilated portion of bowel opened, which was thought to be the sigmoid flexure. The child did well at first, then undigested food was passed, and finally convulsions set in, ending fatally on the thirteenth day. The autopsy showed that the ileum was occluded three feet beyond the pylorus, and the large bowel was a narrow tube containing some scybalæ and B. coli communis.

4. Dr W. K. Hunter showed a specimen of the "Leishman-Donovan Body," sent him by Capt. Geo. Lamb, I.M.S.

THE thirteenth and last ordinary meeting of the Society was held on May 12—the President, Dr Newman, in the chair. There was a fair attendance.

1. Dr Galbraith Connal read notes of and showed a number of cases, illustrating operations for ear disease. These cases he divided into three groups:—(*a*) Cases where there was a mastoid periostitis, and where a simple incision down to the bone gave relief and effected cure; (*b*) cases of acute mastoiditis with suppuration, where the cells required to be opened into, but where a radical operation was not done; (*c*) the cases, generally chronic, with extensive mischief, for which a radical operation had been performed. In doing it he split the posterior wall of the canal, and stitched the retro-auricular wound at the end of the operation, and had had excellent results. He had had three cases of facial paralysis in this last group, two being

present as a result of the disease, the third being post-operative. The first was a girl of 18, on whom he did a radical operation for extensive caries; the nerve, paralysed before, improved greatly in function. His second case was that of a man with purulent offensive discharge; a radical cure was effected, the facial nerve was exposed, and the man did well. The third case was post-operative, the subject being a woman of 32, on whom a radical mastoid operation was done; she complained on the same night of the packing being too tight, and next day facial paralysis was apparent; it cleared up slowly.

These cases were discussed by Drs Kerr Love, Albert Gray, and Downie, and Dr Connall replied.

2. Dr Walker Downie showed a patient wearing a very good form of artificial nose. As a girl she had suffered from extensive ulceration of the nose and palate, and great deformity had resulted. This nose, the invention of a coach-painter, is made of aluminium and celluloid, and painted of a flesh tint. It is attached to the skin by gum round its margins, and is very light. The patient is greatly improved by it, and has worn it for three months. Out of doors she wears a veil.

Dr Downie also exhibited a series of stereoscopic photographs, illustrating a case where destruction of a large part of the nose was repaired by surgical means, followed by the subcutaneous injection of hard paraffin.

3. Dr Albert Gray described some pathological conditions in the internal ear, a subject which, till a dozen years ago, had been practically non-existent. The removal of the membranous labyrinth for purposes of research was not an easy matter, but he had been able to accomplish it with success after many trials. He exhibited first a normal labyrinth, and then one with an accessory ampulla, not previously described, situated at the posterior end of the horizontal canal. He had found it in four cases out of six; no nerve communicated with it in any case. Lastly, Dr Gray showed labyrinths with pathological conditions. In one there were calcareous deposits in the superior and horizontal canals, which had not been noticed before. It was possible that they were the cause of such symptoms as were present in a disease like Menière's—giddiness, tinnitus, and so on. In another case, he had obtained both the labyrinths from an old lady who had been deaf for seventy years. On both sides there were changes in the labyrinth, such as calcareous deposits, and erosion of one of the canals by new bone. In conclusion, Dr Gray said that what was sometimes described as "dry catarrh of the middle ear" was really labyrinthine in origin. It was frequently bilateral, and in not a few cases hereditary.

Glasgow Obstetrical and Gynæcological Society

THE sixth ordinary meeting was held on April 26—the President, Dr J. K. Kelly, in the chair. There was a good attendance.

1. Dr Munro Kerr showed: (*a*) an ovarian cyst with torsion, which had occurred five weeks before admission to hospital; (*b*) a myoma of the uterus, which began to cause trouble at the menopause at 44; (*c*) a myoma showing rapid growth like a pregnancy at 30; (*d*) a myoma showing growth after abortion.

2. Dr Scott Macgregor showed a dilated tube from a woman of 27, the symptoms having pointed to an ectopic gestation; (*b*) a tumour from the lip of the cervix, thought at first to be a fibroid, but shown by section to be a cervical diverticulum with a collection of cysts.

3. Dr M'Ilroy showed a fibrous tumour from a tree, with a capsule, and very like a uterine fibroid.

4. The President showed (*a*) a myoma with very numerous secondary projections; (*b*) two pyosalpinges—one from a case of tubercular peritonitis, the other showing a typical retort-shape.

5. Dr Balfour Marshall showed a fibroid tumour in which there was a curious sausage-shaped fibroid in the interior of the uterus.

6. Dr S. J. Cameron gave a lantern demonstration on fibroid tumours of the uterus, based on 100 cases which he had personally been able to investigate. Analysing the cases first as regards age, he found ten occurred between 20 and 30, twenty-seven between 30 and 40, fifty-one between 40 and 50, eleven between 50 and 60, and only one (on which he operated himself successfully) between 60 and 70. He found that their presence seriously interfered with child-bearing, for whereas in ordinary married women the births averaged 3.4, in fibroid cases they were only 1.7. Further, while 10 per cent. of women were sterile, in fibroid cases the percentage was 20.

A demonstration of between sixty and seventy beautiful slides was then given, showing naked-eye and microscopical appearances of many interesting fibroids—fibro-myoma, fibroid with primary cancer of the tube, fibroid with spindle-celled sarcoma, adeno-myomata, etc.

The President and Drs Kerr, M'Lennan, and M'Ilroy discussed the specimens, and Dr Cameron replied.

Glasgow Pathological and Clinical Society

THE seventh and last ordinary meeting of the Society was held on May 8—the President, Professor R. Muir, in the chair. There was a fair attendance.

1. Dr Downie showed a thyro-glossal cyst which he had dissected out from between the thyroid and chin of a patient. It was firm and vascular, and was attached to the thyro-hyoid membrane. The contents were a thick yellowish-brown fluid, rich in cholesterin, and the cyst showed various septa; the walls were lined with columnar epithelium, showing here and there groups of giant cells. Dr Downie also showed a cyst of the isthmus of the thyroid from the same patient.

2. Dr W. L. Reid gave a short account of a large ovarian tumour removed from an old woman, and exhibited the specimen. The patient was 83 years of age, and came under notice first in 1902, complaining of swelling of the abdomen and falling of the womb. She was a multipara, and the menopause had occurred at 45. For three years or more a swelling had been noticed in the abdomen. Palpation revealed a large, hard, lobulated swelling to the left of the uterus. *Per vaginam* there was a cystocele, and the uterus was three inches long and somewhat fixed. The patient was in no distress, and on account of her age operation was not urged. By 1904, when she was seen again, the tumour had grown and there was ascites; and in March of this year, on account of the distress, abdominal section was performed. Many pints of ascitic fluid were removed, and then a very large tumour of the left ovary, nearly solid, but showing a cystic portion. The peritoneum was a good deal thickened. Recovery was very good, and the patient is now well. The tumour weighed 16 lb. 2 oz., and showed a large, firm, white part, which was fibroma, and a somewhat softer yellowish portion, which was spindle-celled sarcoma, and a cyst filled with bloody fluid. Microscopic sections were shown. The President spoke on this case, referring specially to the occurrence of sarcoma at this advanced age (over 80), and to the success of the operation. Drs Teacher and Findlay also spoke.

3. Dr Galbraith Connal described a case of epithelioma of the external auditory meatus, and showed microscopical sections. The patient was a man of 76, who complained of pain in his ear of only one week's duration. He had noticed a swelling before this in the passage, and it had been removed by his doctor, but has grown again. When Dr Connal saw him there was severe pain, and a vascular sensitive tumour projected from the auditory meatus. The tissues at the angle of the jaw were matted, the facial was paralysed, and there was some giddiness

and staggering on walking. Clinically the tumour appeared malignant, and a section of a piece showed it was a typical epithelioma. Operation was out of the question, and he had two sittings of the X-rays in hospital, but next day had a rigor and temperature of 103°, and this continued for a few days. He left hospital and died shortly after, from, it is presumed, septic infection through the lateral sinus.

Dr Connal said that malignant disease of the external auditory meatus was a rare affection. In 15,000 cases treated at the Glasgow Ear Hospital, there had only been six instances of malignant disease in that part of the ear—four being cases of sarcoma and two of epithelioma. In the case which he had communicated the absence of pain for so large a part of the illness was uncommon.

Drs Walker Downie, Logan Taylor, and the President discussed the case, and Dr Connal replied.

Fifeshire Medical Association

THE spring meeting of the Association was held in the Old Schoolhouse, Thornton, on Friday, 12th inst.—Dr A. J. Macgregor, Dunfermline, President, in the chair. There were present—Drs Mackenzie, Thornton; Laing, Curror, M'Glashen, and Henderson, Kirkcaldy; Laidlaw and Mudie, Ladybank; Ferguson, Anstruther; Donald, Colinsburgh; Palm, Largo; Graham, Leven; Dickson, Lochgelly; Gold, Markinch; Mungle, Kinross; Constable, Leuchars; Orr, Tayport; Nicholson and Walker, Edinburgh; Macdonald and Douglas, Cupar.

The minutes of last meeting having been read and approved, the President introduced Dr Haultain of Edinburgh, who gave an address on the question, "Has Obstetric Practice improved within the past twenty-five years?" Dr Haultain took exception to the statements made by Dakin and Cullingworth, purporting to show that the mortality from puerperal fever had not decreased within that period in general practice. He pointed out the fallacy of comparison of Registrar-General's returns, as these were vitiated by two factors, the more ready recognition of the disorder, and the necessity for notification. Assuming that 1.7 per thousand was the irreducible medium, it is an Utopian statement, and one unjustly injurious to the medical profession, to state that puerperal fever is entirely preventable. He then discussed as a point of practical interest the question, What is notifiable Puerperal Fever? This he showed to be a very fatal malady, as of twenty-three cases notified in Edinburgh last year, twenty-one had died, and defined it as a continued fever

of over 102° F. occurring within fourteen days of confinement, produced by local conditions, and persisting after local treatment has been adopted. Turning to other aspects of obstetric practice, he showed that, with the exception of Eclampsia, all forms of puerperal disease had decreased. The most powerful agent in producing this abatement he considered to be the extended use of the axis-traction forceps. This instrument has three great advantages: traction in the axis of the brim, free scope for moulding of the head, and lessened cranial pressure. The advantages are so great that the instrument is apt to be used too soon, and he laid down a minimum of 2½ hours for primiparæ and 2 hours for others for the second stage, before axis-traction should be applied. The more general use of chloroform, in spite of its checking of pain and tendency to cause post-partum hæmorrhage, the universal adoption of antiseptics, and the greatly improved arrangements for the training of students, were all cited to show the vast improvement in obstetric practice within the last quarter of a century.

The President having thanked Dr Haultain in name of the Association for his able and valuable address, discussion was invited, and was taken part in by Drs Constable, Laing, Palm, M'Glashen, Graham, Nicholson, Laidlaw, Orr, Dickson, and Mungle, the more important points raised being dealt with by Dr Haultain in his reply.

This concluded the business of the meeting, and the members thereafter dined together at the Hotel, Dr Macgregor being in the chair, and Dr Norman Walker acting as Croupier. The toast of "The King" having been duly honoured, the Croupier proposed the health of the guest, Dr Haultain, who suitably replied.

Apologies for non-attendance were received from Professors Macintosh, Musgrove, and Harris; Drs Pirrie, Dawson, Wallace, Macintosh, Rorie, J. Mackay, Morris, Craine, Hardie, T. G. Nasmyth, Niven, Macmillan, Craig, Dow, Anderson, Veitch, Wright, Stewart, R. Spence, Turnbull, Jack, and W. Spence.

Letter to the Editor

SIR,—It is fervently to be hoped that the prospective vacancy in connection with the University Chair of Midwifery and Diseases of Women and Children will lead to the commencement of a period of genuine progress in the Medical School of Edinburgh, and it is eminently satisfactory to understand that no one more than Professor Simpson himself realises the necessity for a real division of labour in this im

portant department. By force of circumstance, Diseases of Children has as a subject long since been able to assume for itself a separate existence; and if it has not yet succeeded in securing for itself a Chair, the loss has been a loss to the University alone. Now, however, that the time has come for the division of the other two of the three theoretical departments of this Chair, we may hope that a proper regard may be paid to all of them, and that Chairs of Midwifery, of Gynæcology, and of Diseases of Children will no longer be looked for and found wanting in Edinburgh.

In Germany the proportion of professors (ordinary and extra-ordinary) to students is something like 1 to 10; in Scotland it is something like 1 to 50. We shall still be far behind in this aspect of the world race for scientific and intellectual supremacy, but this will always be a certain amount of advance.—I am, yours, etc., ALEXR. JAMES.

Editorial Notes and News

Prof. Simpson.

JUST as we go to press a rumour reaches us, which we have every reason to believe, that Prof. Simpson has made up his mind to resign the Chair of Midwifery on the completion of his thirty-five years of office next month. It has too commonly been the practice for professors to aim at dying in harness, and Prof. Simpson sets a most laudable example in stepping down from his chair while he retains his full vigour and activity. As Emeritus Professor, his wisdom, knowledge, and great business capacity will, we trust, be for many years available to the University.

A Chair of Gynæcology.

DOES not Professor Simpson's resignation give an opportunity for that division of the Chair which he has so often advocated. It is notorious that the practice of the two branches is not always successfully combined, and it is clearly the interest of the University to have the best of teaching in both. It will, we know, be argued by those who are opposed to all change that one so important should not be "hastily" carried out, and if this argument prevails, then the opportunity will be lost. If funds do not permit of a full Chair at present, an Extra-ordinary Professor of Gynæcology might be appointed, without a seat in the Senate, in charge of the University wards. The salary need

not be large—two hundred a year from the Donald Currie Fund, supplemented by the share of the clinical fees, would, we are satisfied, be enough to attract candidates whose operative skill and teaching capacity are of the very first order; and a step would be taken in the direction of that increase in the teaching staff of the University which all who have its real interests at heart are convinced is essential to its continued prosperity.

The Need of National Nurseries.

IN her plea for national nurseries in the May number of the *Nineteenth Century*, Miss K. Bathurst is a little hard upon the mere man, to whom she attributes most of the evils of the present system of infant schools. Probably, however, she will discover that the male intelligence is not altogether impervious to the force of her arguments. Indeed, several persons of the male persuasion are already doing their best to convince the community of the folly of expecting good educational results to follow our present system of arranging the babies in rows upon a series of steps, not unlike those used by gardeners for the arrangement of flower-pots in a greenhouse, and then expecting one woman to teach sixty of them at once. There are some 500,000 children under five years of age in England who attend school regularly. Many of them come to school "hungry, cold, and dirty. In slum schools the parents are often drunkards, and the children's nights have been but short. They are heavy-eyed with unslept sleep. They are perched tier upon tier on hard benches one behind the other. Only one way of dealing with them appears physically possible, and the 'discipline' so dear to the heart of the man inspector becomes almost of necessity the end and object of the teacher's life. Every child must be made to resemble his neighbour as nearly as possible. To obtain this effect some sort of drill is required." In Manchester schools Miss Bathurst found that not 20 per cent. of the class-rooms were well ventilated. In many the children had no backs to their seats. Out of ninety-three infant schools, forty-five give lessons in needle-work, which last from forty-five minutes to an hour on end, and thirty-three schools have needle-threading as an occupation for children under five years of age. Ten, fifteen, even twenty minutes are spent in the exercise of threading needles by infants three or four years of age. No wonder squint is common among the children. The morning and afternoon break between classes is often spent indoors in cold weather. "Without assistance, one woman can hardly get sixty babies into hats and cloaks, and out of them again, within the specified time."

Surely this is a sad picture! Is there a more excellent way? Miss Bathurst's idea is to have a "nursery" instead of a class-room. The centre of the nursery should be the playroom. Round the walls kindergarten desks could be placed, and above these a series of hammock beds (hammocks being less likely to harbour vermin than other types of beds). Books (except picture books) should be banished, and blackboards should be used only for purposes of amusement. One corner of the room could have a zinc floor and a miniature sea-shore with sand, etc. The teacher should combine the qualifications of a hospital nurse with a knowledge of Froebelian methods.

Not till the age of six would the child be allowed to go to the neighbouring school, and then for only an hour a day. This should not consist of an hour on end, but be split up into three periods of twenty minutes each, and only ten children at a time should be under the tuition of one teacher. If that teacher were employed for five hours a day, she would instruct fifty children. At seven years of age the child would attend for two hours daily, at eight for three hours, and at nine would join the regular school for full time. Two other suggestions made are that the mistresses should be assisted by ladies other than certificated teachers, and that the "Happy Evening Association" should extend its activity by the provision of "happy afternoons" as a relief to the stereotyped curriculum so often in force "under our present male administration."

There can be no doubt that if children of three and four went up to school at all they should be looked after on some such lines as Miss Bathurst suggests. We would suggest also that every nursery should have some sort of garden, that the children might be out of doors as much as possible. The inspectors, as well as the teachers, should be thoroughly trained in kindergarten methods, and have an appreciative understanding of Froebel's ideas. Probably the kindergartens of many American cities come nearer to Miss Bathurst's ideas than anything we yet possess in this country, and American educationists are agreed that kindergarten children, when they join the ordinary schools, are found to be distinctly more intelligent, interested, and apt at their lessons than others. Besides, the kindergarten babies undeniably have a much better time of it than do infants under the drill system in vogue in Britain.

Royal College of Surgeons of Edinburgh.

AT a meeting of the College held on 16th inst., the following gentlemen, having passed the requisite examinations, were admitted Ordinary Fellows:—John William Crerar, M.B., C.M., Maryport; Robert Douglas Argyll Douglas, M.D., L.R.C.S.E., Edinburgh;

William James M'Culloch Ettles, M.D., London, E.C.; John Smith Fraser, M.B., Ch.B., Edinburgh; Sidney Gerald Comes, L.R.C.S.E., Jesselton, British North Borneo; Duncan Gray Newton, M.B., C.M., Brook Hill, Sheffield; Stanley Raw, M.D., Sunderland; Cyrus Retallack, L.R.C.S.E., Edinburgh; Lambert Kenneth Rodriguez, L.R.C.S.E., London, E.C.; Clifford John Taylor, L.S.A., Clifton, Bristol; and John Sandison Yule, M.D., Melbourne.

Recent Literature

CRITICAL SUMMARIES AND ABSTRACTS

MEDICINE

By G. LOVELL GULLAND, M.A., M.D., B.Sc., F.R.C.P.,
and
ALEX. GOODALL, M.D., F.R.C.P.

SPECIFIC TREATMENT OF EXOPHTHALMIC GOITRE

A CONSIDERABLE number of papers concerning the organo-therapy of exophthalmic goitre have recently appeared, especially in the German magazines. E. von Leyden (*Medizinische Klinik*, Dec. 1, 1904) gives a useful summary of the subject. He states that the generally accepted view of the function of the thyroid is that it neutralises toxic products of metabolism in the body. When this function is lost by atrophy or removal of the thyroid, a cachexia which is known as myx-œdema results. Should hyperplasia of the thyroid lead to hyper-secretion, an intoxication which we recognise clinically as exophthalmic goitre results. Experiments have accordingly been made with the view of antagonising the toxin which gives rise to the symptoms of exophthalmic goitre.

Ballet and Enriquez removed the thyroid of dogs, and found that tetany resulted. The animals were then killed, and their dried blood was used in the treatment of exophthalmic goitre. In this blood there is, in the first place, an absence of the usual thyroid secretion; in the second place it contains an increased amount of the poison which is normally produced by metabolism and neutralised by the thyroid. This poison now serves to neutralise the excessive secretion of the thyroid in exophthalmic goitre.

The therapeutic results of Ballet and Enriquez were encouraging.

Lanz of Amsterdam excised the thyroid of goats and conceived the idea that the substance which neutralized the toxin of exophthalmic goitre might be present not only in the blood but in the milk. He therefore treated patients with from a quarter to half a litre of such milk daily with good results. Burghart and Blumenthal followed up and confirmed the results of the work of Lanz. They found that goats lived for months or even years after thyroidectomy, while dogs on which they had at first operated died after a few days. They, however, encountered a practical difficulty in the thyroidectomised goat-milk treatment, namely, that after a short time patients refused to drink it. They therefore sought for the active substance in the milk and find that it is contained in an alcoholic precipitate.

This precipitate is rubbed up with an equal part of milk sugar, and the resulting substance, which they have called "Rodagen," is used.

Möbius, working on similar lines, has obtained good results by administering the serum of thyroidectomised sheep either hypodermically or by the mouth.

Madsen has made a preparation of the dried and powdered blood of thyroidectomised goats in tablet form and Christens has used this successfully in exophthalmic goitre. Von Leyden has used all of these preparations with favourable results, but latterly has preferred Rodagen.

The following cases are quoted :—

1. A married woman came under observation on October 31, 1904.

Her family history was good.

Previous illnesses of little importance. She had had five children, and in 1903 underwent an operation for retroflexion of the uterus.

For three years she had noticed that she had become very nervous and had suffered from palpitation, which frequently woke her up at night. She also noticed pulsation in the limbs and a beating sensation in the head.

For three or four months she had noticed a swelling in the neck and had become very sleepless. For a year she had steadily lost weight. On examination she seemed well developed but somewhat emaciated. Exophthalmos was well marked but not excessive. The skin showed no abnormal pigmentation. Pulse was 96, respirations 18 per minute.

She complained of headache and giddiness. The hands showed very marked tremors. The patellar reflexes were brisk. Appetite was poor, bowels regular.

There was no enlargement of the heart. There were no murmurs. On November 3, patient was ordered Rodagen—a

teaspoonful thrice daily. On November 4, pulse was 96, the palpitation no better, but the patient had slept well.

Patient showed some slight improvement till November 9, when she had a bad attack of palpitation through the night. Thereafter she steadily improved and rapidly gained weight.

2. A married woman aged 37.

Family history good.

Patient had aborted four times, always at the sixth month; she had given birth to two still-born infants and had one living child. For two years she had suffered from a swelling in the neck which latterly had rapidly increased in size.

She had become excitable and fanciful, and suffered from nausea. For a year there had been a greatly increased tendency to sweat, and for some months patient had noticed an increasing pigmentation of the skin all over the body. Swelling of the feet and legs supervened, so that she was obliged to take to bed. For eight months palpitation had been very severe. She noticed a diminution in the amount of urine. Latterly itching had been a troublesome symptom, and patient had frequently noticed tremors in the hands.

On examination the patient showed brown pigmentation of the skin, marked exophthalmos, œdema of both feet and ankles, and a pulsating goitre, over which a marked thrill could be felt. There was no headache or giddiness, but the hands showed fine tremors. The patellar reflexes were slightly increased. A well-marked systolic murmur could be heard in the mitral area. The pulse was usually about 90, but the action of the heart was very irregular, and during attacks of tachycardia the pulse-rate was 180.

On November 3, treatment with Rodagen was begun. Tablespoonful doses thrice daily were given. On November 4, patient was sweating profusely, and on the 5th had not slept on account of palpitation, and complained of breathlessness and headache.

The dose of Rodagen was reduced to a teaspoonful thrice daily. The sweating continued, but patient now felt much better, and by November 10 the œdema of the feet had greatly lessened and she was sleeping well. She showed practically no symptoms after the 11th.

A third case, a very severe one, yielded readily to treatment by Rodagen, and three years afterwards showed no symptom of the disease.

Recovery usually is complete in three or four weeks, but in severe cases may be longer delayed, and treatment must be continued.

Von Leyden's preference for Rodagen seems mainly due to

its being more easily obtained in Germany than the other preparations, and all the other forms mentioned have their advocates.

Kuhnemann (*Münch. med. Woch.*, 1904, 10) records two cases successfully treated by Rodagen. Hempel (*Münch. med. Woch.*, 1905, 1) reports a cure in the case of a woman aged 55 by the use of Möbius' serum, and in the same magazine Theinger records cures in four cases following the administration of 5 c.c. by the mouth daily of Möbius' anti-thyroidin. Indemans (*Med. Tijdsskrift voor Geneeskunde*, 1904, ii. 3) has successfully treated a case with 90-180 drops of Möbius' serum daily. Christens (*Medizin. Klinik*, 1905, 5) has treated eighteen patients with fresh milk, Rodagen, serum, and dried tablets, and in the great majority of the cases has had favourable results.

Attempts to cause an active immunisation against thyroid have not hitherto passed beyond the experimental stage. Murray (*Lancet*, Aug. 27, 1904) tried the effect of the serum of rabbits fed for three weeks on *liq. thyroidei* three times a week for three weeks.

Two cases of exophthalmic goitre were treated with doses of from 3 to 6 c.c. thrice daily, but without any demonstrable benefit.

SURGERY

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THE ESTIMATION OF THE EFFICIENCY OF THE KIDNEYS BEFORE OPERATION

THE February number of the *Archiv. für klinische Chirurgie* contains an instructive paper by Dr Thorkild Rovsing of Copenhagen, on the present methods of estimating the efficiency of the kidneys prior to operation. The views of this eminent authority in renal surgery are the outcome of a wide and successful experience. He has tested each method in a large series of cases, and the above paper takes the form of a critical review of their merits.

Before the introduction of cryoscopy, the efficiency of the kidneys was chiefly determined from the amount of urea excreted, and the question of nephrectomy was decided by the result thus obtained. Fallacies, however, attended this process, since the excretion of urea may be diminished from other causes than those arising from the actual state of the kidneys. For example, the absence of nitrogenous matter in the diet, necessitated by

the patient's weakened state, is in itself a common cause. Further, the presence of disease in one kidney interferes with the excretory powers of the other, even if it is perfectly healthy, either by a toxic or reflex action. This is observed in malignant disease, tuberculosis, and occasionally pyonephrosis and perinephritis; whenever the diseased organ is removed, the urea excreted by the other kidney rapidly increases and may even rise above normal. In this form, therefore, estimation of urea does not give sufficient evidence of the state of the kidneys to decide the question of the danger attending nephrectomy. If the diminution is very marked, it is a suggestion that the disease is bilateral.

The method that Rovsing adopts as a routine process, and on which he places considerable importance, is—

1. Estimate the total work of the kidneys by ascertaining the amount of urea present in the total urine of twenty-four hours.
2. Ascertain the percentage of urea in the urine secreted by each kidney, so as to compare their relative efficiency.

This simple process has been passed over since the advocacy by continental surgeons of the following methods:—

1. Elimination of coloured substances by the kidneys after injection.
2. Cryoscopy (*a*) of the blood, (*b*) of the urine.
3. Phloridzin test.

1. This method, which consists in injecting 5 m.gr. methyl. blue into the muscles and noting the length of time till it begins to be eliminated, the duration of its elimination, and the quantity excreted, is rightly condemned on all sides as unreliable and incorrect. The rapidity with which it is excreted by healthy kidneys is very variable, while it may be eliminated equally rapidly when there is acute nephritis with even uræmic symptoms.

2. Cryoscopy is so well known that it is unnecessary to allude to it in any detail. Kümmell, its introducer, considers the success of operation depends entirely on the result obtained by freezing the blood. Thus if the freezing-point of the blood be between .56°-.58° C., operation can be safely undertaken; if, on the other hand, it sink to .60° C. or lower, nephrectomy is unjustifiable, as the remaining tissues of the kidneys are unable to carry out the necessary work, and uræmia and death will certainly result. Kümmell states that the test has never failed him in any case, and that a correct estimation can be simply and quickly obtained (in 10 minutes). Can this be possible, seeing that the blood has first to be taken from a vein, and then the

apparatus has to be regulated by determining the freezing-point of distilled water, before that of the blood can be determined?

Cryoscopy of the blood is further augmented by cryoscopy of the urine, obtained from each kidney by ureteral catheterisation. If the molecular concentration of the urine is much lowered and freezes at less than 1° C. below distilled water, the function of the kidney is gravely disturbed.

From the very first, Rovsing was led to take a sceptical view of cryoscopy. The first case in which he employed it was that of a man with left-sided suppurative nephrolithiasis, whose life was threatened by excessive hæmorrhage and rigors, and whose only salvation lay in nephrectomy. A year previously the kidney had been decapsulated with subsequent improvement. The symptoms, however, recurred, and cryoscopy of the blood was performed, with the result $\delta = .59°$ C., a figure which, according to Kümmell, negatives nephrectomy. Notwithstanding this, the kidney was excised, with the result that the remaining kidney took up the work admirably, and the patient has enjoyed excellent health ever since.

Shortly afterwards he discovered that cryoscopy may give a normal δ, and yet the kidney tissue be almost completely destroyed. This occurred frequently in his experience (the state of the kidneys was seen post-mortem), and similar experiences were reported by Stockmann in Königsberg and others. Rovsing therefore made the following statement: "We are as little justified in operating on the ground that a normal freezing-point is obtained, as in declining to operate on the ground of a low freezing-point." In support of this statement he shows that notwithstanding so low a δ as ·60° C. to ·67° C., 6 out of 33 cases made excellent recoveries after operation.

Again, a low freezing-point of the blood is no certain indication of bilateral disease, still less does it justify a grave prognosis being made. It is quite unjustifiable to refrain from operative measures because the freezing-point of the blood is low.

Kümmell states that a normal δ is surety that the other kidney is in a normal condition. Rovsing has found this also incorrect, and instances 5 cases in which the kidneys were found to be in an advanced state of degeneration and yet there was a $\delta = .56°$ C.

Cryoscopy of the blood was absolutely unreliable in 33 per cent. of his cases, while cryoscopy of the urine is so obviously vague that it may be considered useless. Rovsing has therefore abandoned the use of cryoscopy entirely.

3. The phloridzin test has an advantage over cryoscopy, viz., that a copious and rapid sugar reaction cannot occur when

there is advanced renal disease. The test, with which Casper's name is associated, is based on the property possessed by phloridzin of producing glycosuria by an action purely on the renal epithelium ; when the latter is diseased or destroyed, sugar appears only in small amount or is absent. It is claimed for this test that, after injecting the phloridzin, and by comparing the sugar reaction in the urine obtained from each kidney by ureteral catheterisation, a reliable indication of the efficiency of each organ is obtained ; nephrectomy is contra-indicated when the reaction is slight. The sugar should be detected 15 to 30 minutes after injection, and it should be completely eliminated in 2½ hours.

Fallacies attend it, however. It is quite possible to get a slow and very slight reaction with healthy kidneys. According to Casper and Richter the reaction is most marked half an hour after the injection and passes off in 2 to 3 hours ; the ureteral catheters only require to be retained for 10 to 20 minutes. Rovsing has found that frequently there is no trace of sugar in the urine after half an hour, and that it appears 2 to 5 hours after injection and continues to be excreted for several hours. Very erroneous results are got if the urine collected half an hour after the injection is alone examined. The delay in the appearance of the sugar may be due to reflex nervous action. In neurotic persons, whose kidneys are quite efficient, it is not uncommon to find that the introduction of the ureteral catheter produces a nervous polyuria, which changes the character of the urine for the time being very markedly. Consequently, the excreting power of the renal epithelium for the phloridzin may be delayed until the patient becomes accustomed to the presence of the catheter in the ureter. Further, as before stated, disease in one kidney often produces a reflex inhibition of the other, and thus causes a permanent negative result with phloridzin. Removal of the affected kidney is followed by immediate normal excretion by the other kidney.

From the results of the phloridzin test in 8 cases, Rovsing declares that a negative result should never influence the surgeon against removal of a diseased kidney. The urea tests are more reliable and less dangerous than the phloridzin method. For, after all, phloridzin, from its direct action on the renal epithelium, is a poison, and when acting on already injured renal tissue may aggravate the existing damage. One or two cases of hæmaturia have been reported as a result of injecting phloridzin, and although these cases are comparatively rare and have not proved fatal, the injurious action of the drug should not be forgotten. The method, therefore, has no advantage over the urea tests and should be given up.

In the light of these criticisms it is interesting to compare the statistics of Rovsing, Kümmell and Casper. The former, while employing the above methods of examination, was not influenced by their results in regard to the question of operation. The latter were influenced solely by their results. Rovsing in his entire nephrectomies has a mortality of 8.1 per cent.; while that of Kümmell is 16.8 per cent. Kümmell, after employing cryoscopy, had a mortality of 6.4 per cent.; Casper, employing the phloridzin method, had a mortality of 10 per cent.; Rovsing. utilising both, had a mortality of 2.5 per cent. It will thus be seen that Rovsing's statistics are decidedly better than either Kümmell's or Casper's. He attributes his better statistics to the fact that he ignored the results of cryoscopy and the phloridzin test, and to ureteral catheterisation with subsequent chemical, microscopical and bacterial examination of the urine from each kidney.

Summary of Rovsing's views regarding the method of estimating the efficiency of the kidneys:—

1. None of the methods in use are infallible. Only four need be considered, viz., cryoscopy of the blood, cryoscopy of the urine, the phloridzin test, and the quantitative estimation of urea.

2. Cryoscopy of the blood is the least reliable. It gives erroneous results both in the positive and negative direction, and is therefore of little value in deciding the question of nephrectomy.

3. Cryoscopy of the urine, the phloridzin test, and the quantitative estimation of urea, when their results are positive, give evidence in favour of nephrectomy, but when they give a negative result it is not to be concluded that nephrectomy is dangerous.

4. Of the three last methods the quantitative estimation of urea is the simplest and most reliable, and is therefore to be preferred.

5. Catheterisation of the ureters with a careful clinical examination of the separate urines is of the greatest importance before performing nephrectomy. From it we learn, if the other kidney is present, if it is secreting urine, and if its urine is free from pathological constituents, *e.g.* albumen, blood, pus or organisms. Operation can be safely proceeded with if the urine is healthy.

6. In special cases, *e.g.* when the clinical picture is one of bilateral atrophic kidneys or multilocular cystic kidneys, where the urine from the other kidney may be normal, there may be a doubt as to whether the remaining kidney is in a condition to perform the entire renal functions. When this is so, it is advis-

able to expose the other kidney through the loin, and convince oneself by sight and palpation of its condition before proceeding to excision.

OBSTETRICS AND GYNÆCOLOGY

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Syphilis of the Uterine Appendages.—R. Pichevin (*Gaz. des Hôpitaux*, 1905, Jan. 14, 21) reviews the literature of this subject. As far as regards the ovary, the facts recorded are very scanty and can hardly bear the interpretations that the authors have put on them; in several the inference of syphilis rests only on an improvement of the symptoms after treatment with mercury and iodide of potassium. The anatomical data are devoid of microscopic examinations, and Pichevin adopts the dictum of Lancereaux, that "the history of these conditions has yet to be written." Of syphilitic affections of the tube, satisfactory records amount to at most three, each with microscopic examination. (1) Bouchard-Lepine—Post-mortem in a woman of sixty-six with gummata in brain and liver; the tubes were found enlarged and without lumen, and each showed on section three hazel-nut-sized gummata. (2) Ballantyne-Williams—Syphiloma in a girl of seven months, in the form of infiltrations of the tube wall, with small cells like those found in the other organs. (3) Dohnhoffe—Waxy thickening of the tube walls in a new-born girl, with generalised syphilis. The muscle and connective tissue were very rich in nuclei. Last year (*Journ. de Méd. de Paris*, p. 285) Wasilieff published five new cases. The symptoms consist of slight pain and of metrorrhagia, both variable and accompanied by slight and varying enlargement of the adnexæ. He finds two forms of tube, one blue and cyanosed, and one white and hard. The blue variety, when left at the cœliotomy, are cured by antisyphilitic treatment; the white are not. We should not have long to wait for confirmation or control of these observations.

Abdominal and Vaginal Extirpation of the Carcinomatous Uterus (A. Doederlein, *Beitr. z. Geburtsh. u. Gyn.*, 1904, Bd. 9, p. 174).—Since January 1902, Doederlein has adopted the abdominal method, and thinks that it will give as good or even better primary results than the vaginal. Between October 1897 and the end of 1899 he operated vaginally on 73 out of 151 cancer cases. He had a primary mortality of 16.4 per cent. owing to his including cases that were far advanced, but still

gave a possibility of radical operation. 40.6 per cent. of the operated cases were found free from recurrence last summer; that is an absolute cure-rate of 19.6 per cent. Since the adoption of the abdominal route he has operated on 115 out of 175 cases, so that the operability limit has risen to 65.7 per cent. The primary mortality is almost the same, 16.5 per cent. In 65 of the 115 cases enlarged glands were found and removed, and in 26 cases were found to be cancerous. In 23 cases of cancer of the body, glands were found in two very advanced cases only. In one case of cervical cancer, with extension around the left ureter and one gland found cancerous, the patient was free from recurrence two years later; and in another, where the right ureter was infiltrated and excised along with the kidney, the patient is still free four years later. The first step after opening the abdomen is to feel the glands. The glands are removed singly through incisions in the peritoneum. Doederlein enters a caution against teasing the cellular tissue, and also against removing the ureter from its bed.

Prolapse of the Ovary, an Operation for its Cure, with Report of Twelve Cases (C. C. Barrows, *Med. Record*, 1904, vol. clxvi. p. 601).—The operation consists in pushing the ovary through an incision in the broad ligament, and suturing it there. Any cysts in the ovary are incised or resected, and the round and infundibulo-pelvic ligaments are shortened by stitching them up in loops, the knots of the sutures being carefully directed away from the tubes. The cases reported showed relief from pelvic pain, from dyspareunia, and from tendency to abort.

Report of a Case of Tetanus following Labour (A. Strachstein, *Med. Record*, 1904, vol. lxvi. p. 977).—A woman of 34 was admitted to hospital three weeks after an apparently normal labour. The early puerperium was also apparently normal, and she was up on the eighth day. Two weeks after delivery she had severe and continuous sacral pain, and then trismus and other symptoms of tetanus developed. When admitted she had a profuse bromide rash, and a temperature ranging from 99° to 101°. She received 40 c.c. antitoxin, followed by 20 c.c. every three hours; then, as improvement was shown, the interval was lengthened to four, then six hours, and finally she had a daily injection of 20 c.c. for fourteen days, 720 c.c. in all being given. She had also vaginal douches of 1-5000 bi-chloride, followed by saline solution three times a day, and occasional doses of chloral and morphine. She developed a gluteal abscess, and had at times blotches of erythema, ecchymotic in parts.

Pyelonephritis in Pregnancy (E. Rochard, *La Presse Médicale*, 1904, No. 92, p. 729).—In the November number of this Journal we gave a summary of Kendirdjy's review of this subject from the *Gaz. d. Hôpitaux*. The present paper contains the report of an interesting and instructive case. A woman of 30 was admitted complaining of pain on the right side of the abdomen. She had been ailing about a month, having had to keep her bed for the pain, but having no vomiting or trouble of miction. She was pregnant about seven or eight months, and at the right hypochondrium the kidney was found enlarged and exquisitely tender. The urine was frankly purulent, and miction painful and frequent. She had some induration at the apices of the lungs, and was constipated. From time to time she showed signs of retention in this kidney, with clearing of the urine, enlargement of the kidney, pains of nephric crisis, and the temperature rising to 104° in the evening. Then the retention would give way, and these symptoms stopped till the occurrence of a new crisis. She was given urotropin and purgatives, and then sent for a time to the medical ward for the treatment of the lungs and heart. While there she grew worse, losing flesh and having more frequent crises, and the left kidney also became involved. She was retransferred to the surgical ward, but after examination on the operation table she was sent to the maternity ward for premature labour. This was postponed, and ten days later she went into labour and bore twins of between two and three pounds weight each. She then recovered completely except for the lung condition. Rochard arranges the treatment in the order, medical treatment, discussion of the aspects of premature labour in the individual case.

A Case of Operation for Mature Extra-uterine Pregnancy (L. V. Lingen, *St Petersburger med. Wochens.*, 1904, No. 47, p. 511).—A woman of 34, who had had two pregnancies, one abortive and one mature, fifteen years before, was admitted with an apparently double abdominal tumour on account of repeated bleeding. She had had a severe attack of pain eight months before admission. On incision of the abdomen the tumour was generally adherent, and was shelled out with some difficulty, the left tube which ran into the tumour being removed with it. The mass, without liquor amnii, weighed 3450 gm. (7½ lb.), and contained in the upper part the fœtus in its membranes, and in the lower mass the placenta seated in the left tube. The convalescence was smooth.

PUBLIC HEALTH

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ANTHRAX

RECENT investigation into the occurrence of cases of anthrax suggests that the disease has become more prevalent in this country, both in man and animals, within the last few years. Whereas in the years 1884-93 the average annual number of persons dying in England and Wales from anthrax was only nine, in the decade 1894-1903 the deaths averaged fourteen per annum. Whereas in the years 1889-93 the average annual number of outbreaks of epizootic anthrax was 279, there were 481 in 1894-1898, and 640 in 1899-1903. In the first quarter of 1905 there were 278 such outbreaks, a number almost identical with the total annual number fifteen years ago. The increase may be in part only apparent and consist in more intimate acquaintance with the occurrence of cases of the disease, but there is some evidence of a real increase in various parts of the country. Anthrax chiefly affects cattle, horses, sheep, and swine among animals, and drovers, farmers, butchers, tanners, wool-sorters, and horse-hair factory operatives among men. The disease groups itself naturally into agricultural and industrial anthrax, though these two groups do not necessarily include all possible sources of infection. The former group includes outbreaks of anthrax in animals and also human agricultural anthrax, *i.e.* cases of anthrax occurring among farm labourers, butchers, etc., who are in actual contact with farm animals or their carcases. Industrial anthrax, on the other hand, includes those cases of human anthrax which occur in occupations that deal with animal products, such as wool, hair, and hides.

(*a*) **Agricultural Anthrax.**—In a paper read last March before the Society of Medical Officers of Health, Delépine discussed in considerable detail the causes of the increase of agricultural anthrax, and more especially a recent local increase in Cheshire. The ordinary returns of the Board of Agriculture show the number of outbreaks of anthrax, the number of cases in all animals, and the number of cases in cattle, but do not show the proportion of manured land, the density of cattle population, nor the average yearly incidence of anthrax per 100,000 head of cattle. Delépine prepared tables which bring out these details, and he concludes from them that in Great Britain the rate of incidence of the disease is not materially in-

fluenced by the geographical situation, the density of cattle, or the proportion of manured land. On the contrary, it appears that, while there has been a steady increase of anthrax, there has been a gradual diminution in the total amount of manured land. A comparison of the rate of incidence of anthrax in cattle and the character of the chief industries in various counties shows no connection between these circumstances. While Haddington, Edinburgh, Elgin, Aberdeen, Nairn, Forfar, Banff, and Westmoreland all show a high incidence of anthrax, these counties are comparatively free of industries which might be sources of infection for the cattle. On the other hand, many counties in which such industries are located show only a slight incidence of anthrax in cattle. Scotland thus occupies an unenviable position in the comparative table of incidence of anthrax in cattle. Legge also shows a similar table confirming this view, and showing that the incidence of anthrax in animals is twice as great in Scotland as in England, whereas its incidence in man is enormously greater in England than in Scotland. On the whole, Delépine concludes that the grouping of large numbers of cases in limited districts indicates that certain localities become specially infected, and that the disease spreads from these infected centres. Further, he considers that the increase of anthrax cannot be attributed to imported artificial or prepared foods, to manure, or to trade refuse. Special study of the incidence of anthrax in Cheshire shows that the disease has recurred with increasing frequency in limited areas, not always on the same farms, but on farms not far distant from each other. In nine outbreaks suspected of an origin in infected food, the food was analysed and found free of anthrax bacilli or spores. Animals fed entirely on farm produce have developed anthrax, so that the increase cannot be wholly attributed to imported infected food. The disease may be introduced from time to time by products such as manure and manufactured foods, but this would not account for the distribution of anthrax or its persistence and increase in certain districts. Delépine regards infection of the soil as of primary importance, and the infection may spread not only from the fresh grass of pastures, but from hay, grain, or roots grown on infected fields. Superficial pollution of the soil is probably more important than infection of the soil by burial of carcases. This superficial pollution may occur from blood-stained discharges from dying animals, from the blood of animals slaughtered on the farm, and from the careless disposal of the carcases of animals privately slaughtered. There is little risk of the propagation of infection from an animal slaughtered at a public abattoir, its condition would be detected, and the infected carcase would be

destroyed. Anthrax may run a very rapid course, causing death in a few hours, or may have a duration of a few days. The incubation period is variable, and may be longer than the course of the disease. Anthrax is often mistaken for other diseases in the absence of bacteriological investigation. Bacilli are present in the blood immediately after death, and may then be easily recognised, but later their identification is more difficult. M'Fadyean has described a staining reaction which may be of assistance in the recognition of the bacilli. It was first described by Heim, but was independently discovered and more particularly defined by M'Fadyean. This reaction is seen on staining a blood-film with one per cent. aqueous solution of methylene blue. A violet or reddish-purple colour is seen in the amorphous material which is present between and around the bacilli. This material may take the form of coarse or fine granules, and contrasts well with the adjacent bacilli. The reaction is constant and is perceptible even though the blood be not examined till some time after death. It is stated to be characteristic of anthrax, and the stained material is probably derived from the envelopes of the bacilli. The blood-film must be fixed by moderate heat and not by chemical agents, and the stain is applied cold. The blood-film must not be too thin, and must not be too thoroughly fixed. Schäffer considers this reaction quite diagnostic in fresh anthrax material and also obtainable from blood-serum cultures. It is not seen in artificial cultures on other media. Schäffer found that the reaction was not given by blood which was examined 38 hours after death, but M'Fadyean does not specify such a limit.

The main dangers of spread of the disease consist in the illicit disposal of infected carcases, and in the occurrence of overlooked or concealed cases. The remedy against this is a more complete system of notification, and to compel the farmer to notify all deaths from acute illness. Delépine advocates a notification fee for farmers and veterinary surgeons, and also compensation for the losses which measures of a precautionary type may involve. This does not include compensation for slaughter, and might be met by a system of insurance. Penalties should be enforced against wilful concealment. The disposal of infected carcases by burning, provided this can be done without cutting the carcase, is recommended by the Board of Agriculture. In urban districts this may possibly be carried out in a destructor, but in rural districts the disposal by cremation is difficult and expensive. An extemporised fire for the purpose would require one ton of wood and fifteen cwt. of coal or coal and coke, with some paraffin to assist combustion. Where the carcase is disposed of by burial, there must be one

foot of lime below and one foot of lime above each carcase. Slaughter of animals or disposal of carcases in unlicensed premises should be entirely forbidden. There is need of greater co-ordination in the work of the Sanitary, Agricultural, Factory, Markets, and Police Authorities in order to prevent the spread of anthrax.

Human agricultural anthrax usually takes the form of malignant pustule, and may be expected to become more common in the presence of the increase in epizootic anthrax. In these circumstances it would surely be well to include anthrax as one of the diseases notifiable under the Infectious Diseases Notification Act, since there is at present no obligation to notify any case which has arisen outside a factory or workshop. Isolation and disinfection could then be applied to all cases of anthrax as to the other notifiable diseases. Cases are now treated at home or in general hospitals, and there is practically no supervision of such cases by the Public Health authorities.

Although Delépine does not regard the increase of anthrax in cattle as due to artificial food-stuffs of which the raw material is imported from foreign countries, other writers have emphasised this method of transmission of the disease. Thus M'Fadyean states that during recent years many veterinary surgeons have acquired the conviction that anthrax outbreaks in this country may be due to artificial feeding-stuffs, especially linseed and cotton cake. It is suggested that this may account for the occurrence of cases on farms where no previous case of the disease can be traced. Further, anthrax in this country affects cattle much more than sheep or horses, and if it were only due to soil infection this disparity should be less. M'Fadyean describes thirty-nine outbreaks of anthrax, spread over three English counties, in the course of two years, and verified by bacteriological proof. In twenty-nine of these no previous case could be traced, and in twenty of these twenty-nine the animals attacked were fed on artificial cake or Indian meal. The coincidence is suggestive, but no proof is forthcoming that the food-stuffs in question actually contained spores or bacilli of anthrax. Spores of anthrax have, however, been found in feeding cake. M'Fadyean does not attribute the increase in anthrax to artificial manure, since such manures are usually manufactured by the aid of strong chemical agents, which would probably destroy any infection in the raw materials. Some of these manures contain bone and other animal tissues almost unaltered, and may be dangerous. The erratic manner in which anthrax occurs is not apparently connected with the employment of artificial manure. In this temperate climate the

temperature of the soil is rarely favourable for the propagation of the anthrax bacillus, which requires a temperature of 60° F. for multiplication, and 70° F. for spore formation. It has, however, been demonstrated by Legge that the annual seasonal variation in the number of animals attacked by anthrax in Russia shows a maximum in July and a minimum in January. Its curve resembles in a very striking manner that of epidemic diarrhœa in this country, and suggests that the temperature of the soil accounts for the prevalence. The extensive use of refuse from wool, horse-hair, and felt factories as manure may account for some infections of cattle. The wool-sorting rules direct that wool refuse should be burned, but the dust from horse-hair and felt factories is much used as a manure, more especially for hop fields. Instances are known where animals have been directly infected by the use of factory dust as manure. Dust from Persian wool used in a blanket factory was applied to a field as manure, and resulted in the death from anthrax of two valuable horses. Anthrax has also occurred on the sewage farm of a town where workers in wool frequently suffer from the disease. Tanneries may infect streams into which their refuse is cast, and cattle may be infected in this way. Ravenal in Pennsylvania found that this occurred, and that the tanning fluids did not diminish the virulence of anthrax spores.

(*b*) **Industrial Anthrax.**—Under the "Factory and Workshops Act (1901)," every medical practitioner attending on, or called in to visit, a patient suffering from anthrax contracted in a factory or workshop must notify the case to the Chief Inspector of Factories at the Home Office. Legge has published a very valuable analysis of 211 such cases notified during the years 1899-1903.

Industries Involved.—The persons most affected by anthrax are those engaged in industries dealing with wool, horse-hair, hides, and skins. In the woollen industry the operations of wool-sorting, wool-combing, and willowing are specially dangerous. In the horse-hair industry the most dangerous process is the treatment of short hair used for curling, and for stuffing mattresses. Long hair is used for weaving, and undergoes a preliminary washing and heckling. The process of sorting horse-hair is not very dangerous, but some cases occur in brush factories where bristles are dealt with. The manipulation of hides and skins results in cases at docks, warehouses, and tanneries. Even in the later processes, after immersion of the hides in the liming vats, infection may possibly occur, but the workers may have touched untreated material as well as the

limed hides. Other industries in which anthrax may occur are horn manufacture and chemical manure works.

Attack Rates.—Legge compares the attack rates in the horse-hair and wool industries, and finds that the rate is higher in the former. He gives the attack rates calculated on the total persons employed as 1.5 per cent. and .0028 per cent. respectively. In the wool trade, however, the attack rate calculated on those specially exposed to risk, viz. the wool-sorters and wool-combers, is given as 1.3 per cent. These figures may be of some value for comparative purposes, since they are arrived at by the same method, but must not be taken as indicative of the actual attack rate per cent. per annum. They have been calculated from the cases occurring in five years, but on the population of one year. The attack rate per cent. per annum is .3 in the horse-hair industry, and .0005 in the woollen industry, or .26 in those engaged in wool-sorting and wool-combing.

Districts Affected.—Anthrax connected with the wool industry prevails in Bradford and in Worcestershire. Only one such case occurred in Scotland, viz. in Ayrshire, though there are some 30,000 workers employed. The cause of this aggregation of cases in the two districts is found in the class of wool used: it comes from the East, while in Scotland the imported wool is derived mainly from the Colonies. In the horse-hair industry, cases are spread over various districts, and most cases occur in London and Glasgow. In the leather industry, anthrax principally occurs in the ports of London and Liverpool. There were no cases amongst the 15,000 persons employed in this industry in Scotland.

Situation of the Pustule.—A most interesting analysis of these 211 cases shows that in each of the various industries the pustule is most often situated on the neck. This was the site in 84 of the cases; and next in frequency comes the cheek, which showed the pustule in 31 cases. The fingers and hands are rarely affected, but in 16 cases the pustule was on the forearm. The severity of the case varies with the site of the pustule; when it is on the upper eyelid, the neck, the cheek, or the forehead, the case mortality is high; but when on the wrist or forearm, the cases are rarely fatal. There were only 5 cases of internal anthrax, and these all occurred in the wool industry.

Sources of Infected Material.—The suspected material comes, for the most part, in the woollen industry from Persia, Asia Minor, and possibly South America; in horse-hair, from China, Russia, and Siberia; in hides and skins, from China, Bombay, and East India. The explanation of the greater incidence of anthrax from material from these sources is found in the prevalence of the disease in the country of derivation, and in the

absence of any cleansing or preparatory process before export. Much Persian wool comes over in a dirty condition, but it is in large demand for cloth of undyed brown, fawn, or khaki colour, because many of the sheep are naturally of these colours. Legge suggests the transportation of some of the breed to a civilised country like Australia, so that, if the sheep could be acclimatised there, the wool might arrive in a cleaner condition.

Methods of Prevention.—The only practicable method of destruction of anthrax spores is by steam disinfection. This process is not applicable to wool without injury to the wool, but hitherto steam has been used at considerable pressure. Experiments should be made to ascertain whether steam at very low pressures would seriously affect the nature of the wool. In the woollen industry the method of prevention consists in exhaust ventilation to remove the dust from the neighbourhood of the employees during processes prior to washing. It is only partially successful, and does not destroy the spores, which may find their way into water or manure, unless all the dust is burned. Steam disinfection is applicable to horse-hair, without damage to the material, if the steam be used at a pressure not exceeding 2¼ lbs. It is thus carried out with success in Germany. Experiments by Webb and Duncan at Worcester have shown that exposure for twenty minutes to steam at 230° F. is a valuable aid in safe manipulation of horse-hair, and that it is advisable to have as little dust or grease as possible on the hair, since the spores are thus protected from the steam. No disinfection is practicable in the case of hides and skins, so that in this industry preventive methods consist in the prohibition of work for men with open cuts or scratches on exposed parts of the body, in the wearing of overalls, and in prompt recognition and treatment of the disease.

Treatment.—Preventive inoculation for anthrax in animals was introduced in Saxony by Sobernheim, who produced a high degree of immunity in sheep, and found that the serum of these immunised animals contained specific protective powers against anthrax. Sclavo, of Sienna, also produced similar immunity in sheep, and obtained from them a serum effective in the prevention and cure of anthrax in rabbits. In view of this success, Sclavo proceeded to try a similar treatment in cases of human external anthrax. The first case was treated in June 1897, and in 1903 Sclavo reported on 164 cases treated with his serum. He found that the most powerful serum could be obtained from an immunised ass, and he considers this the most suitable animal from which to obtain anti-anthrax serum. The mortality in these 164 cases was only 6.09 per cent., while the mortality in all Italy was about 24 per cent. Legge states the

case mortality of his 211 cases of industrial anthrax as 26 per cent., and figures of 28 and 31 per cent. are forthcoming for specified cases in France and Germany. A serum which promises such a reduction of mortality is worthy of further and more extensive trial. The dose recommended is 30 or 40 c.c., subcutaneously, in three or four injections into different parts of the abdomen. The injections may be repeated if there is no improvement in twenty-four hours. In grave cases intravenous injection of 10 c.c. is advocated, the vein selected being one of the superficial veins on the back of the hand. Excellent results are reported by Sclavo, even when the condition of the patient is most critical. Bandi, of Bologna, reports two cases of success by serum treatment when local cauterisation had failed. He recommends large doses of serum injected into the middle vein of the arm, and he used as much as 150 c.c. When such large doses are given, the serum must be freed from ether, which Sclavo adds as a preservative in the proportion of 3 per cent. To effect its removal, Bandi filters the serum before use through warm sterile gauze, and thus removes ether and sediment. Bandi's serum was derived from sheep, and its properties are said to be both anti-bacterial and anti-toxic.

An extension of compulsory notification, the application of isolation, and of more thorough disinfection in all cases, combined with the introduction of serum treatment, should tend to modify the prevalence and severity of anthrax in this country.

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New Books and New Editions

Studies in General Physiology. JACQUES LOEB, Professor of Physiology in the University of California. Chicago: The University of Chicago Press. London: T. Fisher Unwin, Paternoster Square. 1905.

IN those utilitarian days when science is so generally regarded as a mere handmaid of the arts, it is refreshing to find a worker like Jacques Loeb devoting himself to the study of the funda-

mental problems of life, with no motive but the curiosity to know the secrets of life.

The work ranks along with Verworn's *Allgemeine Physiologie*, and it is to be hoped that the author will some day condense it to a more systematic and available form.

At present it is presented as a series of reprints of papers which have appeared between 1889 and the present time.

The first two of them deal with heliotropism—the influence of light in directing the movements of animals. A large series of experiments upon various caterpillars, insects, and fixed hydroids are recorded, and from these it is concluded that the dependence of animal movements on light is in every point the same as the dependence of plant movements on the same source of stimulation. Just as the orientation of plants by light depends upon the fact that symmetrical points on the surface possess equal irritability, so it is in animals, and the movements are of such a nature as to put the animal in such a position that these symmetrical spots are equally acted on by the light. The body being so orientated, if it is free, moves in the direction of the light rays either towards the source of light or away from it, is positively or negatively heliotropic. The influence of light is often more marked at one period than another, and may vary with the temperature and other surrounding conditions. Indeed, by varying these, the author has been able to convert a condition of positive to one of negative heliotropism, and *vice versâ*.

The way in which other forms of irritability such as that to gravity—geotropism—and irritability to the contact with solid matter, may modify heliotropism, is elucidated in a most interesting manner.

The general conclusion that the "behaviour of an animal depends on the sum total of its different forms of irritability," strikes a deadly blow at the metaphysical conceptions of the movements of animals being the result of sensations, pleasurable or otherwise.

Such vitalistic conceptions have done much to retard the progress of physiology, by producing a spirit of contentedness with the explanations of action, and thus preventing the prosecution of further work.

Loeb shows that these movements are determined by as fixed and immutable physical laws as is the fall of a particle of matter under the force of gravity.

These ideas are well focussed in the essay "On Instinct and Will in Animals."

The chapters on Heteromorphism are chiefly of interest to the zoologist, although the pathologist cannot fail to find

material for thought in the experiments by which the polyp end of a hydroid may be converted into the root end, and *vice versâ*. Perhaps the reversion to embryonic types of tissue in malignant disease are experiments by Nature of a similar kind.

The paper on Geotropism discusses the question of the orientation of invertebrates and vertebrates to the earth's centre, and deals, among other problems, with that of why fish swim belly down, and what is the part played by the internal ear in their orientation.

In the chapter on Organisation and Growth, published in 1892, the author first touches those problems to which his attention has been chiefly directed during later years—the influence of surroundings upon growth. Here he shows that growth and regeneration in the hydroid tubularia, as in plants, depends upon the amount of water absorbed. When sea water is diluted, growth is more rapid; when concentrated, it becomes slower or may be arrested.

In the second volume, the short essay "On the Physiological Problems of To-day" gives the key-note to the investigations recorded. He points out that "the exact and definite determination of life-phenomena which are common to plants and animals is only one side of the physiological problem of to-day. The other side is the construction of a mental picture of the constitution of living matter from these general qualities. In this portion of our work we need the aid of physical chemistry, and especially of three of its theories: stereochemistry, van't Hoff's theory of osmotic pressure, and the theory of the dissociation of electrolytes. We know that the peculiar phenomena of oxidation in living matter are determined by fermentative processes, and we venture to say that fermentations form the basis of all life phenomena."

It is with the physiological application of the two last of these theories that he chiefly deals. In several papers he treats of the effects of ions on various forms of protoplasm, and he shows how they act and react on one another, so that for the normal performance of functions they must be appropriately balanced. Each disturbance of their balance leads to a disturbance of function. The practical bearing of these investigations is indicated in the essay on the "Production and Suppression of Muscular Twitchings, etc., by Electrolytes." It is well worthy of the consideration of physicians.

This study of the action of ions leads him finally to the investigation of artificial fertilization without spermatozoa, but by merely altering the surrounding conditions of the ova; and he suggests "that the fertilizing action of the spermatozoon consists in this, that it carries into the eggs substances which

accelerate the course of certain (synthetical?) processes in the egg. Such an acceleration might, for example, be brought about through certain ions (for example, the hydrogen ions of nucleic acid), yet the possibility that such catalytic effects might also be brought about through enzymes or other substances is, of course, not shut out. Yet this fact must be considered: that we have been able to produce artificially *normal* embryos *capable of development* through ions, while the careful experiments of Gies, conducted in my laboratory, in which he attempted to find the same to hold for enzymes, have thus far failed."

Space has not allowed us to do more than to indicate the interesting and original nature of the work recorded. A study of the papers cannot fail to fascinate and stimulate any thoughtful reader.

An Introduction to Physiology. By L. A. HODGKINSON LACK, M.B., Ch.B. Edinburgh and London: William Green & Sons. 1905. Price 8s. net.

THIS is a cram-book under the guise of an elementary text-book. An attempt has been made to cover the whole field of physiology and histology in a series of short sentences, all numbered. Additional information (of a kind) is thrown in at frequent intervals under the illuminating heading "N.B." Some parts of the book are so condensed as to be unintelligible, and errors are numerous. Those hardy veterans which are copied from text-book to text-book are well represented, and the author has introduced a large number which seem to be original. The book is interleaved with blank pages which will come in useful for corrections.

The Open-Air Treatment of Pulmonary Tuberculosis. By F. W. BURTON FANNING, M.D. (Cantab.). Pp. 176. London: Cassell & Co., Ltd. 1901.

ONE feature marks this small work out from the large number of similar works published upon this subject during the past few years, namely, its essentially practical character. The writer has set out with the clear object before him of providing the practitioner with information to enable him to carry out open-air treatment whenever it is expedient to employ it. He confines himself to dealing with the subject only in so far as he can do so from actual personal experience. He frankly admits that his experience does not extend to the uses of serums, tuberculins, or X-rays, either for purposes of diagnosis or treatment. He

therefore, we think wisely, omits to deal with them. He very clearly compares the measures to be adopted when treating a patient at home with those to be followed when the patient is resident in a sanatorium. In this section practitioners who wish to treat their own patients at home will here find very useful guidance.

When comparing the claims of Continental as opposed to home climate, he says that "in no instance has removal abroad materially influenced the course of cases previously undergoing treatment in Britain; those doing badly at home have not benefited by the change, and the removal of those doing well has not materially influenced the rate of their recovery." The experience is one which is daily receiving confirmation at the hands of others.

The chapter dealing with Fever contains some useful observations which have been made by the writer himself. It is not generally known, for instance, that the difference between a patient suffering from tuberculosis standing and lying down amounts to .5° F. Nor is it generally known that the oral temperature as a guide only becomes as reliable as the rectal method only after a period of seven minutes has been employed in taking it.

Some valuable instructions are to be found in the chapter dealing with Diet. Whilst the work of Goodbody done in this section was undoubtedly good, in so far as his deductions are based upon an observation of six cases, we cannot help thinking that the writer places much too high a value upon it. The book contains a useful and ingenious table of physical signs, which are helpful to those who wish to keep a clinical record of their cases from month to month. The work is a good one, and we can conscientiously recommend it alike to general practitioners and to those who are engaged in the narrower sphere of sanatorium work.

The Surgery of the Diseases of the Appendix Vermiformis and their Complications. By W. H. BATTLE, F.R.C.S., Surgeon to St Thomas' Hospital, and E. M. CORNER, F.R.C.S., Surgeon in Charge of Out-Patients, St Thomas' Hospital, and Assistant-Surgeon to the Great Ormond Street Hospital for Sick Children. London: A. Constable & Co., Limited. 1904.

IN their book on "The Surgery of the Diseases of the Vermiform Appendix and their Complications," Messrs Battle and Corner have entered fully into the various aspects of this much-studied and engrossing subject. In the two opening chapters

the anatomy, physiology, development, and pathology of the Appendix is, each in turn, admirably and concisely set forth.

The larger half of the book is concerned with a discussion of the symptoms, diagnosis, and treatment of Appendicitis in its different degrees under the main divisions of—

1. Apparently Non-Suppurative Appendicitis.
2. Appendicitis with localised Suppuration.
3. Appendicitis with spreading Peritonitis, each division receiving a chapter to itself.

Here every page bears the stamp of wide practical experience and acute observation, and a series of well-chosen cases to illustrate special points enhances the value of the book.

A chapter is devoted to the methods of entering the abdomen and of removing the appendix, and here, as in the succeeding pages on the complications of Acute Appendicitis and on its differential diagnosis, many practical hints are met with on every hand.

A useful chapter on the relation of Acute Appendicitis to selection for life insurance concludes a treatise which is evidently the fruit of much practical experience, and which, among publications on the subject which are legion, stands out as combining conciseness with comprehensiveness.

A Text-Book on Operative Surgery: Covering the Surgical Anatomy and Operative Technic involved in the Operations of General Surgery. Written for Students and Practitioners. By WARREN STONE BICKHAM, Phar.M., M.D., Assistant Instructor in Operative Surgery, College of Physicians and Surgeons, New York; late Visiting Surgeon to Charity Hospital, New Orleans; late Demonstrator of Operative Surgery, Medical Department, Tulane University of Louisiana, New Orleans. Pp. 984, 559 illustrations. Philadelphia, New York, London: W. B. Saunders & Co. 1903.

THIS is a handsome volume of upwards of 1000 pages, embellished with 569 illustrations. The task which the author has set himself is an ambitious one, the work being "planned to be a presentation to the student and practitioner of the best technique of modern surgeons in the operations mentioned, accompanied by a brief summary of the description and surgical anatomy of the structures involved."

Part I., comprising half the volume, and divided into thirteen chapters, is devoted to the operations of general surgery.

The chapter on the Ligature of Arteries is clearly and concisely written, the anatomical relations are given with strict accuracy,

and the illustrations are admirably clear, as well as rich in detail.

Arteriorrhaphy and its applications in the radical cure of aneurism receive due consideration. In the "comment" on the closure of an opening in a large vein by the application of a lateral ligature we think some reference should have been made to the liability of the ligature to slip off the internal jugular from the distension it undergoes during vomiting.

The chapter dealing with the Operations on the Nerves is of the same standard of excellence as that on the arteries, but here illustrations are conspicuous by their absence. In this chapter will be found a description of the intraneural and perineural infiltration methods for regional anæsthesia.

The operations on the Tendons are well illustrated, and due prominence is given to the various methods of tendon transplantation.

The chapters on Amputations and Excisions, admirably illustrated, should prove a great help to the senior student in performing operations on the cadaver.

Part II., comprising the operations of regional surgery, is divided into eight chapters, dealing respectively with the head; the spine and spinal cord; the neck; the thorax; the abdomen and pelvis; the male and female genital organs; and operations for hernia.

A noteworthy feature of this section of the book is the admirable manner in which the surgical anatomy is dealt with preliminary to the description of the operative technique. The illustrations, which are something more than mere diagrams, have evidently been executed with great care from specially prepared dissections; in the majority of instances they give an excellent idea of the anatomical relations of the parts, as well as of the technique of the operation.

On turning to the chapters dealing with the Abdomen and Pelvis, one finds abundant evidence of the up-to-date character of the book. The general considerations in connection with operations on the peritoneum and the gastro-intestinal canal are well set forth, and the methods of intestinal suturing are clearly described and well illustrated.

In the chapter dealing with the Urinary Organs, the various operations on the ureter receive their full share of attention. We would point out, however, that the ureters do not pass downwards and inwards through the "lumbar," but through the umbilical, region.

The chapter on the Thorax embraces the recent advances in the operative procedures on the pericardium, the heart, and the mediastinum.

In the operation for excision of the tongue we observe that the author has described Kocher's original operation, and not the operation which is described in the latest edition of that author's work.

No attempt has been made to deal with the clinical aspect of operative surgery, nor do we think this advisable in a work intended more particularly for students.

The book is an admirable record of the most approved methods of operative technique, and we venture to think that it will appeal to the surgeon as well as to the student and practitioner.

The Diagnosis and Treatment of some of the Common Diseases of the Rectum and Anus. By CECIL H. LEAF, M.A., M.B. (Cantab.), F.R.C.S. (Eng.), Surgeon to the Cancer Hospital, and the Gordon Hospital for Rectal Diseases. First edition. Pp. 118. London: E. H. Blakeley. 1905.

THE Rectum has been a favourite subject with writers for generations. Many writers have discoursed on it, and some have even become famous in connection with the subject.

We do not think that there was any demand for a new publication and there is nothing new in Mr Leaf's little book. At the same time, what Mr Leaf describes in his preface as the object of his book may be fulfilled, namely, to help the busy practitioner in diagnosing and treating the more common diseases of the Rectum and Anus, and to introduce them to the study of the more elaborate text-books and monographs on the subject.

Mr Leaf has eleven chapters. The first deals fully and accurately with the anatomy of the parts concerned. The second gives a description of how a patient should be examined. The directions given are excellent and, if carefully followed out, would facilitate and expedite a thorough examination.

The chapter on Piles is not, in our opinion, complete enough. External piles are not sufficiently described and explained; and for internal piles, only one method of treatment, by ligature, is given.

The chapter on Pruritus Ani is excellent and contains a considerable amount of sound advice. That on Prolapse is unnecessarily long and diffuse, the condition not being among the more common affections.

Mr Leaf's remarks on Fissure are good—but we are astonished to find that he does not include stretching of the sphincter among the methods of treatment.

Anal and Rectal Abscesses are treated at length, and many varieties described. There is not, however, sufficient said to aid the diagnosis of one variety from the other.

The next chapter is on Fistula. Again many varieties are described. Mr Leaf's remarks on tubercle are judicious and reliable.

We are rather surprised that he does not refer to the swabbing of tuberculous areas with pure phenol to destroy bacilli, and prevent general infection. He gives a good account of the treatment of Fistula in Ano, but does not seem to know of the long fistula knife, first invented by Mr Joseph Bell, which, to those who know of it, saves an immense amount of time and trouble—being probe and bistoury in one.

The concluding chapters are on Malignant Diseases. They deal with the subject fairly well, though by no means fully. On the whole the book can be recommended as one which might be useful to the "busy general practitioner" as a safe and handy guide. The main defects are bad paper and bad type.

There are 17 illustrations, which are a valuable aid in understanding the context.

Cancer Utérin Inopérable, Traitement du. By Dr J. RÉCAMIER, Chirurgien de l'hôpital libre Saint-Michel. Pp. 214. Paris: Georges Steinheil. 1905. Price 3 fr. 50.

DR RÉCAMIER'S extensive experience at Saint-Michel enables him to discuss in an interesting and masterly fashion that most distressing of conditions — inoperable uterine cancer. The scheme of the book is logical, and though, as the author states, it propounds no new theories, it does what is from the practitioner's standpoint of greater value, viz., gives the results of practical experience.

After surveying the various forms of "curative treatment, Dr Récamier concludes that total extirpation of the organ by hysterectomy is the only procedure which can fairly claim such a title. If Dr Récamier's stringent methods of selecting cases suitable for hysterectomy were in more general use, the operation would most probably have to its credit a much larger percentage of permanent cures than it can at present claim. As the great majority of cases are seen too late for radical treatment, Dr Récamier goes on to discuss the palliative treatment, devoting a chapter to each of the more prominent symptoms. For hæmorrhage and discharge, especially in the ulcerative form, and also where there are cauliflower excrescences, Dr Récamier finds the best results follow free curetting and the heroic use of the actual cautery. This treatment has

in his hands given better and more uniform results than the use of the knife, thermocautery, or caustics, or even ligature of the uterine arteries, not only in checking the hæmorrhage and discharge, but also in arresting the advance of the disease.

In combating pain, Dr Récamier states that morphia, used with care, gives the best results, but he also finds that chloral as a douche or on tampons frequently gives marked relief. The drastic procedure of cutting nerve roots is only indicated in cases "in which any condition is preferable to the state the patient is in."

Other procedures for the relief of pain, such as epidural injections of cocaine, or forcible ano-rectal dilatation as advised by Poncet, Dr Récamier has used to such a limited extent that he cannot offer any definite opinion as to their merits.

In the treatment of all cases Dr Récamier advises regular examination of the urine, as early diagnosis of renal complications is very important.

Careful dieting is of the utmost importance for maintaining the patient's general health. Dr Récamier also strongly advocates the use of quinine, hypodermically by choice.

In all stages of the disease an ample supply of fresh air and scrupulous cleanliness are essential alike to the well-being of the patient and the comfort of those brought into contact with her.

Obstetrical and Gynæcological Society, Transactions of the Glasgow. Vol. iv. Sessions 1902-1904. Pp. 254. Glasgow: Alexander Macdougall. 1905.

THE Glasgow Society is to be congratulated on this its fourth volume of Transactions. Though not so extensive as the transactions of some other societies, the present volume contains several interesting and valuable contributions.

The contents are rendered easy of access by a system of double index. In the first index the contents are divided into three groups according as they relate to Gynæcological, Obstetrical, or General subjects. The second index gives the names of writers or speakers, and is also an index to subjects.

During the sessions many interesting specimens have been exhibited, but much of their value is lost in the published transactions owing to the limited number of plates and illustrations found in the volume.

The Honorary President's address imparts to the volume a distinctly transatlantic feel, Dr Howard Kelly having chosen as his subject "The History of Appendicitis in Great Britain."

Whatever system of territorial demarcation may find favour in America, in this country the general surgeon has always claimed the appendix as his own, and few gynæcologists deny his claim.

In addition to addresses and original communications, the volume contains several exceedingly interesting discussions. One of these, on "The Diagnosis and Treatment of Medium Degrees of Pelvic Deformity," is well worthy of notice. The importance of the subject from a practical standpoint cannot be over-estimated, and all methods which may aid the obstetrician to recognise definitely that he has a slightly-contracted pelvis to deal with are well worthy of his full and careful consideration. Considered as a whole, the practical side of the volume is its outstanding feature, and it is this feature, which renders it not only of interest to the gynæcologist and obstetrician, but of peculiar value to the general practitioner.

The Edinburgh Stereoscopic Atlas of Anatomy. Edited by DAVID WATERSTON, M.A., M.D., F.R.C.S.E., F.R.S.E., Lecturer and Senior Demonstrator in the Department of Anatomy, Edinburgh University. In Five Sections, each containing Fifty Subjects, with Descriptive Text. Edinburgh: T. C. & E. C. Jack; and 34 Henrietta Street, London, W.C. 1905. Price of the Complete Work, £6, 5s. net.

AMONGST the many interesting relics in the possession of Professor Chiene are a number of excellent stereoscopic photographs of anatomical subjects taken by that great anatomist, John Goodsir. It is indeed strange that stereoscopic photography should have been so little taken advantage of during the many years that have elapsed since Goodsir's time. Within recent years clinicians have come to recognise its value, and we are gratified to see from the atlas before us that the Edinburgh School has set such a good example to anatomists. The Formalin method has given such an impetus to the study of topographical anatomy and has so revolutionised its teaching that the time for placing before the profession a stereoscopic atlas of anatomy is particularly opportune. Dr Waterston is to be warmly congratulated in having so successfully accomplished his admirable conception.

We learn from the preface that the atlas is prepared under the control of the department of anatomy of the University of Edinburgh. The present section consists of fifty stereoscopic photographs, fourteen of which illustrate the central nervous system, the remainder the thorax. In each system of the body the illustrations are arranged in subsections, and each sub-

section is numbered independently, so that additional photographs can be added to any section without disturbing the general arrangement. Each photograph is mounted on a card, upon which will be found an admirably clear and concise description of the dissection and of the individual structures, to each of which a reference number is appended.

Dr Waterston has exercised commendable discretion in the selection of the dissections, and we are confident that the practitioner as well as the student will find in the atlas exactly what is wanted. The dissections are well finished as well as rich in detail. The photography has been done with rare skill and artistic finish, indeed we venture to think it will play a large part in completing and assuring the success of the enterprise. It would be difficult to imagine anything more realistic and instructive than the views of the anatomy and topography of the heart. The simplest stereoscope will suffice to bring into relief all the structures shown in the dissections, so that the observer can at once bring before him, as vividly as if he were in the dissection room, any point in practical anatomy upon which he desires to refresh his memory. It will be a matter of surprise if this most useful atlas does not find its way into the library of every member of the profession who appreciates the value of anatomy in the daily routine of medical and surgical practice.

Anatomie des Membres. Dissection—Anatomie Topographique. Par le Dr CH. DUJARIER, Ancien Prosecteur à l'Amphithéatre de Clamart, Chef de Clinique Chirurgicale à la Faculté. Paris: G. Steinheil. 1905.

NOTWITHSTANDING the beauty of the fifty-eight plates, mostly in colours, the excellent typography, and the exquisite finish of the whole work, it is somewhat difficult to assign a correct place to this work of Dujarier. Putting on one side the obvious criticism that but few English students use a practical text-book in a foreign language, we can hardly believe that even one of the author's fellow-countrymen would introduce such a veritable *édition de luxe* into a dissecting-room. Its daintily coloured binding, the delicate coloration of the plates, and above all, its size—royal octavo—all preclude such a possibility; and if the book is not intended for practical use in a practical room, its *raison d'être* fails utterly. The author himself says in his preface (we are quoting freely): "I have wished, in writing it, to be useful to students dissecting, by giving them some practical hints, and above all, by submitting to their eyes some types of anatomical preparations."

From this we gather that the author's production is really intended as a practical manual, and if this is a sample of the

size of manual—armful would be a more appropriate expression—French students are in the habit of carrying to and fro, they have our profound sympathy and pity.

So much for the manner. With the matter we have no fault to find. Written with that lucidity which seems to be the happy gift of French anatomists, most beautifully illustrated, and with every attention to those minor variations which so constantly appear in almost every dissecting-room subject, Dujarier's work is bound to be appreciated by those for whom it is intended. As the present work only deals—as its title implies—with the limbs, we shall look forward to the completion of the work, though in all probability Dr Dujarier's surgical duties would more amply reward him from a pecuniary point of view.

The Naked-Eye Anatomy of the Human Teeth. By THOS. E. CONSTANT, L.R.C.P., M.R.C.S., L.D.S. Eng. Pp. xv. + 189, 14 plates, 72 illustrations. Bristol: John Wright & Co. 1905. Price 7s. 6d. net.

THE title of this book does not at all indicate its scope or nature, for, as a matter of fact, the naked-eye anatomy of the teeth does not occupy one-third of the volume, the bulk of which is concerned with the anatomy of the parts around the mouth, and with the macroscopical development of the jaws and teeth. One cannot, therefore, expect to find much that is original in such a book, but it is one that will probably appeal to a large section of dental students, inasmuch as there is here brought together the general anatomy which a candidate for the "final dental" is expected to know, and which he has hitherto been required to pick and choose from various parts of a text-book.

The author states in the preface that the great part was written ten years ago, and is intended as an introduction to a forthcoming work on dental physiology. Perhaps this explains some of the features which we feel mar an otherwise excellent and useful book, and in view of the probability of another edition being called for, we would point out some of the more noticeable defects.

In the first place, there is a strong tendency in general anatomy and in dental literature to disuse the term "submaxillary," and to substitute "mandible" and its adjective "mandibular," thus bringing the terminology into touch with that used in comparative anatomy. This is done occasionally, but why not consistently throughout the book?

Fortunately but few students of to-day will recognise the lingual nerve under the author's obsolete name of "gustatory."

numerous subjects comprised in the duties of a sanitary inspector, and the specimen tables of records should greatly facilitate the orderly account of work accomplished. The chapter on nuisances is good, but might be improved by the introduction of a rubric, or of headings to paragraphs dealing with the different varieties of nuisances. The description of water-closets traps, and joints is very good, and the inclusion of illustrative specifications for house drainage work renders it easy for the student to ascertain how such work should be carried out.

The book is handy and well printed, the illustrations are sufficiently clear, and it may be recommended as a useful summary of the multitudinous duties of a sanitary inspector.

The Book of Prescriptions (Beasley), containing a complete set of Prescriptions illustrating the employment of the Materia Medica in General Use; comprising also Notes on the Pharmacology and Therapeutics of the Principal Drugs, and the doses of their preparations according to the Imperial and Metric Systems, with an Index of Diseases and Remedies. Rewritten by E. W. LUCAS, F.I.C., F.C.S., Pharmaceutical Chemist, late Examiner to the Pharmaceutical Society of Great Britain, author of "Practical Pharmacy." With an Introduction by ARTHUR LATHAM, M.A., M.D., F.R.C.P., Senior Assistant Physician at St George's Hospital, Assistant Physician at the Brompton Hospital for Consumption. Eighth Edition. Pp. 366. London: J. & A. Churchill. Price 5s. net.

WITH the first sentence in Dr Latham's introduction we entirely agree, namely: "Medical students of the present day have seldom mastered the difficult art of prescribing at the time at which they obtain their qualification to practise." There is another statement by Dr Latham which every medical practitioner should ever bear in mind, and with which we fully concur: "That a prescription should be legible and neat; that no abbreviation should be employed which admits of more than one interpretation; and that the quantities should be indicated clearly and definitely."

We do not believe that this "Book of Prescriptions" will ever enable medical students to "master the difficult art of prescribing at the time at which they obtain their qualification to practise." True, the book contains over one thousand prescriptions; but no one will ever learn to prescribe well simply by reading or committing to memory the prescriptions of others. The book contains an index of diseases and remedies, which is the most valuable part of the work to students.

The Chief Operations of Ophthalmic Surgery. A Practical Guide for Students. By HAROLD B. GRIMSDALE, M.B., B.C., F.R.C.S. Pp. 144. London: *The Medical Times*, Ltd., 11 Adam St., Strand, W.C. 1904.

THIS is an unpretentious work intended, as the author states in his Preface, "to enable the student to learn—so far as is possible, by actual practice on dead animals—something of the chief operative procedures in ophthalmic surgery," and its scope is practical, not historical. Considerable liberties have been taken with the original descriptions of several of the operations, and it is probable that some of the author's modifications would not receive the endorsement of other ophthalmic surgeons. For instance, the shifting of the grasp of the conjunctival forceps during a cataract section, or again, the grasping of the conjunctiva *above* the vertical diameter of the cornea in the making of a preliminary iridectomy, are questionable advantages.

The chapter on Enucleation and its substitutes is very good and practical. The illustrations are admittedly crude and diagrammatic, but the little book will usefully serve the purpose for which its author has intended it.

Medical Philology. Gathered by L. M. GRIFFITHS, M.R.C.S. Eng., 12mo. Part I., A—Ei. Bristol: J. W. Arrowsmith, Quay Street.

THIS excellent commencement of a series arises from the author having been assistant-editor of the *Bristol Medico-Chirurgical Journal*. He at that time gathered notes upon "the social, literary, and anecdotal aspects of our profession," and these, with many additions, form the nucleus of the present book. The starting-point was from the words in the *Promptorium Parvulorum* and the *Catholicon Anglicum*, edited by Mr Albert Way and S. J. H. Herrtage.

We in this way learn the history of many medical and popular words. Thus the word Agnail was apparently used originally as equivalent to "corns," and did not change to its present meaning until 1617. The old pronunciation of "Aches" as a dissyllable is insisted on. An interesting note on "Boyste," tells us of the customs and rules of a monastic infirmary, and this is followed up with a note on "Blodeyren" or *flebotomator*. "Boneschawe," the forgotten name for sciatica and spavin in a horse, merits a note, as does "Brawne," originally equivalent to "*musculus*, *sura*, and *pulpa*," which has become limited in its meaning to the dish prepared from pig's head. There are many interesting medical words mentioned which are now obsolete; we meet—incidentally—"entreats," and we find a note

on "Colysshe, disshe mete," which seems to have been a restorative broth. "Collesses made of shrympes," we are told, "comforte blode and nature." "Dragaunce"—*Scottice* "dragant"—is also mentioned along with its properties in this book, which is a work from which those interested in old cures and medical nomenclature can learn much.

Journal of Mental Science. Vol. li. No. 212, January 1905. London: J. & A. Churchill. Price 5s.

THE place of honour in this number of the *Journal* is given to a paper by Dr W. Lloyd Andriezen, who discusses the Problem of Heredity without referring to the theories of either Mendel or Beard, and who asserts that the germ-track may lie, and often does lie, in somatic cells. Dr Townsend contributes a paper dealing with Mental Depression and Melancholia considered in regard to Auto-intoxication, with special reference to the presence of Indoxyl in the Urine—a paper which was awarded the Bronze Medal of the Medico-Psychological Association in 1904. Amongst other original articles may be mentioned Dr Mercier's "Kinds of Insanity"; Dr Graham's "Science and a Future Life"; Dr Bond's "Study of Body Weight and its relation to Mental Disease"; and Dr Conolly Norman's "Modern Witchcraft." The usual clinical notes, reviews, and epitome of current literature complete a number of very considerable general interest.

The Medical Annual, 1905. Pp. 843. Bristol: John Wright & Co.

THIS well-known yearly volume keeps up its former high standard. One important change is made, and that is an increase in the size of the page. We hope this will not again occur, as it would detract much from the volume's handiness. The articles are all written by representative men, and although special departments may interest one reader more than others, yet one would heartily endorse the editor's statement that to the general practitioner a full reading would be amply repaid. Without desiring to make invidious distinctions, one mentions specially the articles on Serum Therapy and Intravenous Medication as being particularly useful at the present time.

New books multiply rapidly and one can't read all, hence the value of this concise digest of modern medical opinions becomes every year greater.

All Communications—including **BOOKS** *for* **REVIEW** *and* **EXCHANGE JOURNALS**—*are to be addressed to* THE EDITORS, 7 *Manor Place, Edinburgh*, AND NOT TO 43 CASTLE STREET.

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